

A METHODOLOGICAL AND THEORETICAL EXPLORATION OF
YOUNG CHILDREN'S UNDERSTANDING AND EXPERIENCE OF
STRESS

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Abstract

Background: Compared with the body of research exploring children's understanding of health and illness, children's understanding of psychological concepts has been less widely studied; although research does indicate that young children may have some understanding of psychological terms such as depression. There is also a paucity of research considering young children's perceptions of stress within their daily lives. This thesis explored children's knowledge, understanding, and experience of stress from 4- to 11-years of age.

Method: The preliminary studies provided a methodological inquiry, using focus groups (N=31), semi-structured interviews (N=50), and forced choice (N=39) methods. A larger-scale study (N=353) using a draw-and-tell technique, followed by a semi-structured interview was then conducted. The findings from children were compared with adult online-survey data [N=91/73] and interviews [N=20].

Findings: The methodological inquiry demonstrated that the interview method was the most appropriate to use in this thesis, but that it was necessary to develop a rapport with the child prior to future interviews, in order to put him/her at ease with the researcher. Across the studies, many children reported seeing other people who had been stressed, as well as having personal experience of stress. The themes identified included biological, psychological (cognitive, emotional, and behavioural), and social factors. Some of the youngest children (aged 4-5) did have rudimentary knowledge of stress but this was generally limited to emotional and behavioural factors. Some children in middle childhood (aged 7-9) also talked about social and cognitive elements, and some of the oldest children (aged 9-11) additionally mentioned biological factors.

Conclusion: Children's understanding became more adult-like with increasing age, although children's conceptualisations were different to adults. The findings have theoretical implications for psychology, as well as practical implications for healthcare and educational professionals, for example, the findings may enable individuals to provide age-appropriate information to help children understand and manage stress, using a biopsychosocial framework.

List of Publications and Presentations

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1. INTRODUCTION

This thesis adds to our understanding of both methodology and theories relevant to young children by exploring a novel area within children's understanding of health and illness. The thesis attempts to identify the most appropriate method to explore primary school children's understanding of stress, to conduct a relatively large study to explore children's perceptions of stress and to conceptualise the findings within existing theories.

The thesis is motivated by a desire to understand children's perceptions of stress and to identify, from the child perspective, how children experience and cope with stress from 4- to 11-years of age. The idea for the thesis was based on work conducted as a research assistant at the University of Derby. The importance of the research and the potential implications were highlighted in this initial research, which stimulated a desire to continue to study this area. It is anticipated that the research may have implications, both in terms of health psychology research and health and educational professionals' practice.

Thesis Structure

The thesis is divided into four parts: (1) background, (2) preliminary research studies, (3) main studies, and (4) discussion. Further details about the content of each of these sections are outlined below.

1.1 Part One: Background

Chapter 2 reviews the areas of stress and coping which are most pertinent to the thesis. It begins by considering how stress is defined and conceptualised within the lay population. This is imperative, as it is important to place children's perceptions of stress in the context of the everyday usage of the term within the general population. As the thesis also views children's understanding of stress from a psychological perspective, the psychological approach to stress and coping is also outlined by presenting the main theoretical models of stress. Stress research and stress measures in child populations are reviewed and critically evaluated. This chapter highlights that, although the overall body of literature on stress and coping is vast, there is a paucity of research considering stress in young children – particularly young children's perceptions of stress

within their daily lives. Chapter 3 introduces the reader to the literature relating to children's understanding of health, illness, and associated concepts (e.g., contagion). The chapter discusses children's understanding in the context of Piagetian theory, the most pertinent traditional theory, as well as more recent psychological theories of child development. A brief account of the relevant aspects of each of these theories, in so far as they relate to children's understanding, is discussed. The review demonstrates that there are differences in children's levels of understanding, depending on age and, arguably, stage of development. However, there are other salient factors, such as the role of experience and gender, which also, potentially, influence children's understanding. The chapter ends with a brief review of the literature exploring children's understanding of mental illness and emotions. The gap in the research focusing on children's understanding of psychological concepts is highlighted.

The fourth and final chapter in this section provides an overview of some of the main methodological and ethical challenges associated with collecting data in the child population. The chapter begins by briefly outlining how research with children has progressed and changed in recent times. This enables the reader to set the work reported later in this thesis in the context of children's rights within UK society today. The chapter explores practical and methodological considerations which make child research different to adult research. In particular, the chapter considers issues relating to gaining access to children through other people and the power imbalance between adult researchers and child participants. Given this power imbalance and that children are viewed as vulnerable participants, an overview of ethical considerations, particularly concerning consent, confidentiality, child protection, withdrawal, and deception are also presented. The chapter outlines how these issues are addressed in the research conducted for this thesis. The chapter concludes by noting the importance of the researcher being aware of these methodological and ethical issues throughout the research process, which brings the reader to the preliminary research reported in Part Two.

1.2 Part Two: Preliminary Empirical Research

Part Two (Chapters 5 to 9) contains the preliminary empirical studies conducted at the start of the research process. One of the reasons to conduct these studies is to identify the most efficient, child-centred method to use in subsequent data collection. Ensuring that research is child-friendly and appropriate is a key aim of the thesis. As children's understanding of stress is a relatively unexplored

area it is essential that methodological considerations are addressed before conducting a large-scale project. Therefore, this section begins with a brief introductory chapter detailing the different methodologies that are frequently used with children. The next three chapters present (in a scientific paper format) three preliminary studies exploring children's understanding and knowledge of stress using different methods. Each study builds on the knowledge gained in the previous study/ies and uses a different methodology to explore children's knowledge and experience of stress.

The first study uses a focus group method. In addition to exploring children's knowledge and experience of stress, this study aims to identify the terminology that children use to describe stress (in order to develop materials for later studies). The subsequent two studies use semi-structured interviews and a forced choice method respectively, to explore children's understanding and experience of stress. The strengths and weaknesses of each method are considered in the overall discussion at the end of this section.

From the preliminary studies, it is concluded that some young children have a basic understanding of stress and many have experience of this concept; it appears that both understanding and experience develop with age. An evaluation of the three different methods shows that the semi-structured interview method is most appropriate, although including additional elements would be useful to help to develop a rapport with the child. The quality of the research is discussed in Chapter 9, particularly the small, restricted sample across the studies which is limited to a higher than average socioeconomic group. The sample is also restricted in terms of ethnicity to mainly White British children. However, some of these limitations can be seen as fruitful avenues for future research. The main body of research, presented in Part Three, is therefore designed to address these issues.

1.3 Part Three: Main Empirical Research

The third part of the thesis (Chapters 10 and 11) includes two large chapters which present the main empirical study. The main study uses a larger sample and more child-friendly method than the preliminary studies. Techniques, developed from participatory action research methodology, minimise the power imbalance between the researcher and child participant, in order to gain in-depth data which reflects children's views.

Chapter 10 presents the first part of the main study which uses a draw-and-tell technique. In draw-and-tell, children are asked to draw a picture and then tell the researcher about their drawing. Children who have heard of the word stress are invited to draw a picture of a stressed person (either themselves or another person). Children who have never heard of the word stress are asked to draw a picture of their favourite person. This method is selected as a way to develop a rapport with children, as well as to gain insight into children's perceptions of stress through drawings and narratives. It is concluded that the draw-and-tell method works well in assisting the development of a rapport with children, but it is accepted that the analysis of pictures is subjective.

Immediately after drawing and talking with the researcher, children are invited to take part in a semi-structured interview, using the same questions as in the preliminary study reported in Chapter 7. This interview allows detailed information to be acquired from children to gain understanding of how children conceptualise stress, how they or others experience stress, and the coping strategies that children are aware of. In this chapter (Chapter 11), the findings from children's semi-structured interviews are compared with adult data obtained via an online survey and a small number of face-to-face interviews.

The key finding from the main study is that some children, across all age groups, have an understanding of stress, which becomes more adult-like with increasing age. In addition, some children have experience of stress in the context of their daily lives; some have indirect experience, through seeing other people stressed, and many children have both levels of experience. Many children are also able to name ways in which people may prevent or manage stress; knowledge of coping again becomes more adult-like with increasing age. However, some children are not aware of any ways of stopping stress; others describe maladaptive coping strategies to deal with stress.

1.4 Part Four: Overall Discussion

The final part of the thesis (Chapter 12) draws together findings from each stage of the programme of research and discusses these in relation to the research questions and existing literature.

In summary, it is noted that some children across all age groups, from 4- to 11-years of age, understand the term stress. Children's understanding develops with increasing age and older children are able to provide more complex answers

some incorporating biological factors. Few gender or socioeconomic differences are noted in children's understanding or experience. It is not possible to identify where children develop their understanding of stress from, as most children are not able to identify any specific incident of learning. However, many children report indirect experience of stress, and report seeing significant adults in their lives being, or saying, that they are stressed. It is possible that children's understanding develops through this social learning process. Children's experience of stress, both directly and indirectly, increases with age, as does their understanding of how to stop or manage stress. Children's understanding appears to become progressively more adult-like with increasing age, but remains different to adults' conceptualisations. As in the research with children, some adults do not report biological elements associated with stress. It is not possible to state whether this is due to lack of understanding or whether it is simply not mentioned in the adult interview study; further research on lay adults' understanding of stress may be useful.

The chapter concludes by discussing the implications of the research, for health and developmental psychologists. In terms of theoretical development, it is interesting to note how and when children begin to develop an understanding of stress, and how this relates to their overall development. The results, from the studies conducted in this thesis, indicate partial support for a Piagetian theory of development. That is, there is a shift in understanding at approximately age seven and possibly at age 11. At the age of seven, many more children gain understanding and/or report experience of stress, however, some younger children also have an understanding of stress. The research also has implications for practice. Research could provide guidance for provider-patient communication, particularly within preventative health education, in terms of communicating with children about stress. It may also help educational providers help children to cope with stress. Recommendations for future research and practice are presented throughout the discussion.

Aims and Research Questions

The overarching research aim of the thesis is to explore 4- to 11-year old children's understanding and experience of stress and the coping strategies that they may employ, or be aware of, in their daily lives.

The research questions are generally similar across the five studies conducted for this thesis. The five studies are: (1) preliminary study using focus groups;

(2) preliminary study using semi-structured interviews; (3) preliminary study using forced choice questions, comparing adult and child data; (4) main study using a draw-and-tell technique; (5) main study using semi-structured interviews, comparing adult and child data. Where a research question is specific to only certain studies, the appropriate study numbers (as listed above) are stated in brackets after the research question. The aims and research questions expanded as the research progressed, through the preliminary studies and background reading. The final aims and research questions are summarised below.

1.5 Awareness of Stress

The first aim is to explore the developmental sequence of the awareness of stress and to identify key terminology children use when talking about stress.

The research questions associated with this aim are:

- At what age do children become aware of stress? (1)
- What terminology do children identify with stress? (1)
 - What are the key areas of significance to children regarding stress? (1)
- Are the broad topic areas of defining and experiencing stress, learning about stress and coping with stress suitable for children across the age range 4- to 11-years? (1)
- How many children in each age group have heard of stress?
 - Does the number of children who have heard of stress increase with age? (1-3)

1.6 Conceptualisation of Stress

The second aim is to explore how children conceptualise stress and to investigate age, gender, and socioeconomic differences in children's conceptualisations. The specific research questions are:

- What do children understand the word stress to mean?
- Can children tell when someone is stressed?
- What do children perceive the consequences of stress to be - what happens to an individual when they are stressed?
- Does children's understanding of stress differ: (a) across age groups of children, (b) from adults' understanding (3 and 5), (c) between genders, and (d) across different socioeconomic groups (4 and 5)?
- Are there any differences in the frequency of occurrence of features relating to stress in children's pictures and narratives? (4)

1.7 Experience of stress

The third aim is to explore children's and adults' experiences of stress within the context of their daily lives, in terms of both direct and indirect experience, and the feelings that children and adults associate with personal stress. A further aim is to investigate the relationship between experience of stress and knowledge about stress in child and adult participants. The associated research questions are:

- Have children any experience of stress in their daily lives, either personally or indirectly through the adults in their lives?
- Does children's experience of stress differ across age groups?
- What do children feel when they are stressed and how does this compare to adults' feelings? (5)
- Does children's experience of stress differ from adults' experience of stress? (5)
- Does children's understanding (knowledge) of stress develop with increasing experience? (5)

1.8 Coping with Stress

The fourth aim is to explore ways in which children and adults cope with stressors in their daily lives and to investigate the relationship between knowledge of coping strategies to deal with stress and both experience and understanding of stress. The research questions are:

- Do children believe that people can stop or manage stress?
- If children have direct experience of stress how do they cope with stress?
- If children have indirect experience of stress have they seen how others cope with stress?
- What coping strategies do children identify?
- Is there a relationship between knowledge of coping, and both experience and understanding of stress?

1.9 Other Research Questions

- What is the most effective method to assess children's understanding and experience of stress? (1-3)
- Where do children develop their understanding of stress from? (1-2).

PART ONE:
BACKGROUND

2. STRESS AND COPING

Section 1

Conceptualisation of Stress in Western Society

2.1 The Use of the Term 'Stress'

"Everybody knows about it, everyone talks about it, and-judging by the number of paperback books and magazine articles currently devoted to the subject-everyone seems to be interested in it. People complain about the stress of work and the stress of retirement; the stress of poverty and the stress created by fame and riches; the stress of crowding and the stress of isolation; the stress of adolescence and the stress of the midlife crisis. To describe someone as 'working under enormous stress' is at once to offer sympathy and to accord a measure of respect. To fail at a task because of stress is no shame; to succeed in spite of stress renders success all the more glorious" (Organ, 1979, p.32).

Although the above text was written over 30-years ago, the content could arguably describe the use of the term stress in Western society today.

Nevertheless, the extent to which stress is perceived as a valid concept is contested. It has been argued that stress is not naturally occurring, but rather is a 'manufactured concept' (Pollock, 1988) and is, at least in part, a socially constructed phenomenon (Dick, 2000; Young, 1980). Furthermore, other researchers have suggested that stress is a useless notion (e.g., Ader, 1980; Briner, Harris, & Daniels, 2004a; Brown, 1996) which lacks validity (Kasl, 1995) because of its abstract broad definition, which is difficult to operationalise scientifically (see Cohen, Kessler, & Gordon, 1995, for review). However, this viewpoint is not universally held by researchers and despite difficulties in defining the concept, the term stress remains in widespread use both within society and academia.

Within health psychology stress is a major topic of research. One author identified over 7,000 articles on stress published in the five-year period between 1988 and 1993 (Cassidy, 1994), another found an additional 223,000 articles on stress and coping published from 1994 to 2007 (Aldwin, 2007). However, it is not only within health psychology that stress is frequently discussed. Stress

prevention, management, and the causes and consequences of stress are often reported in society (Lazarus & Folkman, 1984). For example, newspapers often illustrate the dominant ideologies and popular stereotypes which surround stress (Lewig & Dollard, 2001).

Despite the common usage of the term stress, there is no universally agreed definition. In one of the groundbreaking works in the area of stress research, 'The Stress of Life', Selye (1956 p.43) commented: *"If we are to use this concept in a strictly scientific manner, it is important to keep in mind that stress is an abstraction; it has no independent existence"*. That is, Selye suggested that stress is intangible, but in order to study stress scientifically, it is necessary to have a working definition of the concept. Therefore, the following section explores how stress may be defined.

2.2 Defining Stress

Amongst other factors, the Oxford English Dictionary (OED, Oxford English Dictionary, 1989) attempts to record the orthography, pronunciation, signification and use of words, as such it is a useful document to gain a generic understanding of the term stress. A dictionary definition is provided below in order to demonstrate how stress is conceptualised in everyday language. Within the lay population, the use of the term stress is very broad and can have many meanings. For example, within linguistics stress refers to the emphasis of words and how sounds or syllables are spoken; within science stress refers to an applied pressure exerted on objects; and within law stress refers to distraint (taking someone's belongings for payment or money owed) (OED). This mainstream use of the term stress antedates its use scientifically or psychologically (Lazarus & Folkman, 1984) and it was not until the late 1940s that the term stress was used in a psychological manner (Young, 1980). It is the psychological definition of stress that is the topic of interest within this thesis and which will now be explored in greater depth.

The OED (online entry 50239243) describes stress, in a psychological and biological manner as: *"Stress, n.3.g. An adverse circumstance that disturbs, or is likely to disturb, the normal physiological or psychological functioning of an individual; such circumstances collectively. Also, the disturbed state that results"*. It is clear in this definition that, even from purely a psychological stance, stress is multifaceted in nature. The start of the definition, *"An adverse circumstance that disturbs..."*, suggests that stress can be conceptualised

externally, as a stimulus from the environment. The next part, "*that disturbs, or is likely to disturb, the normal physiological or psychological functioning of an individual*", draws attention to the stress response. This alludes to the effects that stress may have on an individual, including both the '*physiological*' (also known as biological or biochemical) and/or '*psychological*' factors which may be influenced by stress. The final part, "*the disturbed state that results*", implies that stress can also be seen in terms of the consequences that stress has on the individual. This shows that, in everyday language, stress is a broad term which can be used in a variety of ways.

2.3 Lay Adult's Understanding of Stress

2.3.1 Stress and illness

As stress is such an expansive concept one would expect that understanding of stress, within the general public, may vary. In Western society, stress is often seen in terms of misfortune, dissatisfaction and/or suffering (Helman, 1988). One of the associations with suffering is seen in the link between stress and illness. Cassidy (2000) noted that the relationship between stress and physical illness has been widely accepted since the early work of Selye in the 1950s.

In addition to a general awareness of stress, the general public also seem to link stress to illness. Research has shown that stress has been used by the general public to describe or explain the aetiology of a number of illnesses, for example, fatigue (Aaronson, Pallikkathayil, & Crichton, 2003), myocardial infarction (MI) (Clark, 2003) and heart attacks (French, Marteau, Senior, & Weinman, 2002). Misconceptions in lay adults' perceptions of stress do occur, for example, many people implicate stress as exacerbating or causing conditions such as acne (Brajac, Bilic-Zulle, Tkalcic, Loncarek, & Gruber, 2004) when in fact there is no scientific evidence that links stress and acne (Rasmussen & Smith, 1983). Similarly, research has shown that lay people incorrectly attribute stress as a greater risk factor for MI than smoking or diet (Clark, 2003). Whilst these studies highlight some misconceptions regarding adults' understanding of stress, they do illustrate that the general public have some awareness of stress and see stress as a potential cause of illness. This may be, at least in part, because of the number of individuals who have experienced stress related ill health, resulting in days off work (Health & Safety Executive [HSE], 2010). This has led to a large body of research exploring work related stress within occupational psychology.

2.3.2 Work related stress

Kinman & Jones (2005) studied lay representations of the term 'occupational stress' in 45 individuals in the UK. They found that participants viewed stress as multifaceted, being influenced by personal, environmental, and societal factors. Similar research has also been conducted within other countries, for example, considering workplace stress in Canada (Harkness et al., 2005), Thailand (Nilvarangkul, Rungreangkulkij, & Wongprom, 2010), and Malaysia (Idris, Dollard, & Winefield, 2010). It is evident from these various studies that although there are some similarities in perceptions of stress across countries, there are also differences. This may be because of different cultural influences effecting perceptions of stress. Therefore, it is important to consider cultural influences when exploring understanding of stress.

2.3.3 Health related stress

Within the UK, in one of the few health psychology related articles considering lay understanding of stress, Clark (2003) interviewed 14 patients who had had an MI. He found that some participants viewed stress in terms of everyday external events such as leading a busy life or work problems. Others viewed stress in terms of the interaction between multiple personal and external factors, such as age and having teenage children. One participant who had lived through the Second World War believed that the term stress was used much too frequently in today's society. Again, this study showed that, amongst the general public, stress is viewed in broad terms, as a multi-dimensional concept which depends on social factors, personal beliefs and experiences, as well as situational factors.

Garrard & Brumby (1985) asked 39 adolescents (Year 10 students) and 51 adults (University students) in Australia to define stress, how they felt when stressed and how they cope with stressful situations. They found that participants had difficulty in defining stress and tended to use synonyms, such as 'pressure' and 'tension' in their responses or described their experiences of stress. Only a minority of participants (30% adolescents; 35% university students) mentioned physical (e.g., headaches) and emotional (e.g., feeling irritable) reactions to stress or outcomes. Some adults (15%) also mentioned the positive effects of stress, which was not mentioned by adolescents. Very few students mentioned coping strategies to deal with stress, although they did name numerous stressors. The most common of which were exams, school/university work, and family.

It is evident from the aforementioned research that adults in the general population have a broad interpretation of stress; this has been shown across Western society. In Canada, Massé (2000) recorded over 2200 different concepts that the lay population associated with distress¹. Using thematic content analysis, the author condensed these into 176 subcategories and 47 categories. Although the author was looking at the term distress rather than stress per se, this demonstrates that, even looking at the categorical level, the number of concepts associated with stress in the lay population is vast. Lay definitions, undoubtedly, interrelate with professional definitions. Within the psychology profession, there is a wide range of views about stress, which can be broadly reviewed within the four main models of stress; these models will be discussed in the following section.

Section 2

The Models of Stress

Cox (1978) stated that the numerous definitions of stress may exist because stress can be observed in three different ways. The dictionary definition provided in Section 1 presented two of these (as a stimulus and as a response) and the third (as an interaction) has been provided by psychologists. These three stand-points are represented in the main models of stress: the response-based, stimulus-based, and transactional models of stress. Each of these models will now be discussed in more detail, along with a brief account of the biopsychosocial model.

2.4 Stress as a Stimulus

As presented earlier, stress can be conceptualised externally, as a situational factor or stimulus from the environment. Psychologists have described this perception of stress in the stimulus-based model of stress, which has also been referred to as the engineering model of stress, because it was developed from engineering principles (Cox, 1978). As was explained in the aforementioned dictionary definition, within scientific disciplines stress refers to an applied pressure or force exerted on objects. This scientific definition of stress helps us to understand the stimulus-based model. The law of elasticity specifies that

¹ Distress is often used to refer to psychological stress in the literature (Wheaton, 1997). Some researchers distinguish between distress (from the Latin *dis*, meaning bad) and eustress (from the Greek *eu*, meaning good). For further information on this distinction, see Selye (1975).

everything has a limit of potential after which irreversible changes occur. In the stimulus-based model of stress, this law of elasticity is applied to humans. That is, when faced with a stressful stimulus from the environment, temporary changes occur in the body, but once the stressor is removed the person returns to his/her previous state. However, if the stress is chronic or above a certain level and the individual's 'elastic' limit is reached, change (e.g., illness) may occur. The law of elasticity, the point at which change occurs, is reflected in many of the stress metaphors, such as, '*the straw that broke the camel's back*', '*at breaking point*', '*at the end of my tether*' and so on.

To summarise, this model suggests that events which are external to the individual cause changes to occur in the body. The external events are seen as the stress, rather than the individual's responses to these events. So, in terms of the stimulus-based model, stress may be caused by pressures, responsibilities, or demands, or by physical characteristics such as excessive noise or temperature. These external events may also be referred to as stressors (Selye, 1956).

2.5 Stress as a Response

Viewing stress as a response is typically referred to as either the response-based, physiological or medicophysiological model of stress (Cox, 1978). In this model, the external stimuli are termed as stressors rather than stress per se. A stressor may be defined as any event or situation that an individual perceives is a threat to his or her wellbeing (Lazarus & Folkman, 1984). Stress itself is perceived as the internal processes, or as Selye (1936) termed – the non-specific response, that occurs when an individual is exposed to a stressor. Although even the early stress research acknowledged that stress may have both physiological and psychological effects on an individual, much of this early research focused on the physiological changes that occur (Cassidy, 1999). Further consideration of these physiological changes will now be discussed, beginning with the early research which led to the development of the response-based model.

2.5.1 Fight or flight response

In the early 20th century, Walter Cannon and Hans Selye conducted research which highlighted the physiological responses that occur in the body in response to a stressor. Cannon labelled the response to stress as 'fight or flight', that is, when confronted with a stressful situation individuals can either face it and fight

or run away (Asterita, 1985). Selye (1950; 1958) expanded this work, conceptualising the response to stress as 'general adaptation syndrome'. Selye provided a descriptive account of the physiological changes that occur in response to stress. He proposed that experiencing a prolonged or excessive stress response may lead to more significant changes, including mental and physical illness, and even death. The main physiological areas where the stress response can be seen are in the central nervous and endocrine systems; each of these will now be considered further.

2.5.2 The nervous system

The human nervous system is divided into three main parts: the central nervous system (CNS), incorporating the brain and spinal cord; the peripheral nervous system (PNS), including all neurons which are not part of the CNS; and the autonomic nervous system (ANS). It is the latter, the ANS, which is implicated in the stress response and which will be discussed in more detail.

The ANS is part of the PNS and controls the regulation of basic life processes, such as heartbeat, blood pressure, digestion and excretion, hormone balance, metabolism and reproduction (Asterita, 1985). The ANS itself can be subdivided into two branches, which work together to regulate the body: (a) the sympathetic ANS, which prepares the body for action, and (b) the parasympathetic ANS, which does the opposite, slowing the body down after action (see Figure 2.1). It is the sympathetic portion of the ANS together with the adrenal medulla (the sympathetic adrenomedullary axis) that is the implicated in the stress response (McEwen & Dhabhar, 2002).

Physical responses to a stressor, which are triggered by the sympathetic ANS, include: increased muscle tension, respiration, blood pressure, and heart rate; the liver releasing glucose to provide energy for the muscles; muscles of the bowel and bladder contracting; and non-life saving functions of the body (e.g., digestion) slowing down (see Figure 2.1). Once the stressor is removed, the parasympathetic ANS then works to counteract these effects and maintain the optimum conditions for functioning of the body. The functions of the ANS explain some of the common signs that many people associate with stress such as sweating. For example, the ANS works on maintaining an average body temperature, thus when an individual faces a stressor, the ANS increases perspiration (sweating) to keep the body cool so that it is ready for action (Asterita, 1985). Although the functioning of the ANS explains some of the

common signs of stress, these are not the only physiological changes that occur in the body in response to stress. In addition, there are other inter-related physiological reactions occurring, for example, within the endocrine system.

Figure 2.1. The Autonomic Nervous System (ANS)

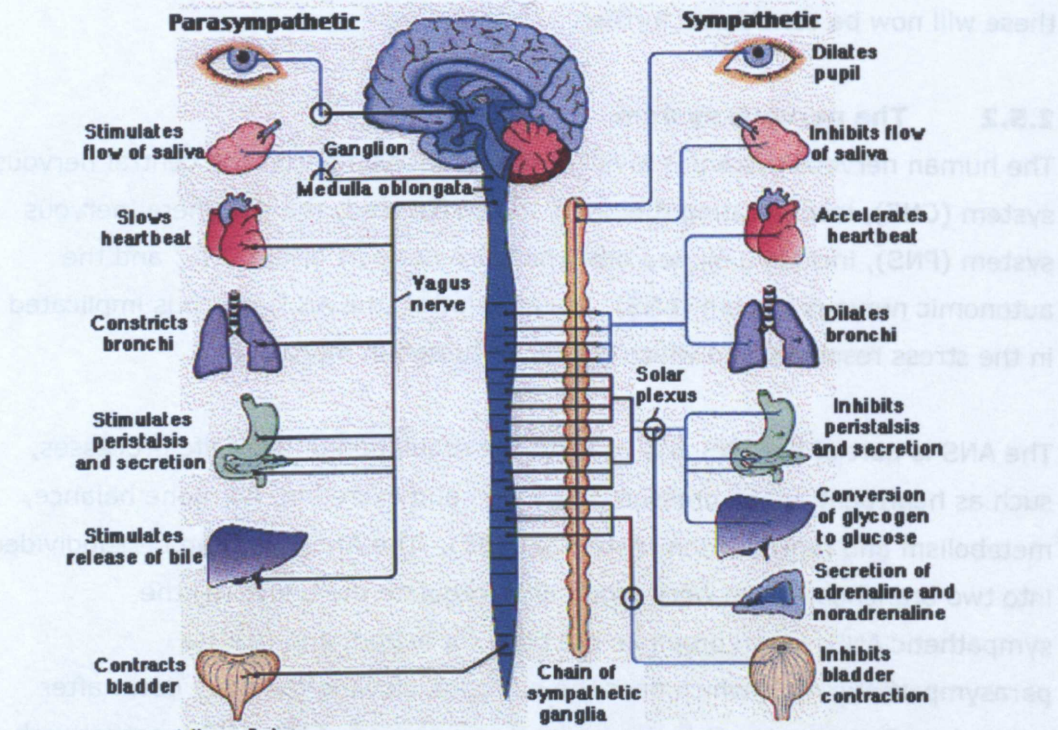


Figure 2.1. The left side of the image shows the functions of the parasympathetic ANS, the right side of the image shows the sympathetic ANS; these two branches of the ANS work together to regulate the body.

Reproduced from "Organization of the Nervous System" by J.W. Kimball, 2011, *Kimball's Biology Pages*, retrieved from "<http://users.rcn.com/jkimball.ma.ultranet/BiologyPages/P/PNS.html>". Copyright 2011 John W. Kimball.

2.5.3 The endocrine system

In this section, for the purpose of illustration, a simplified account of the endocrine system is provided, although more complex descriptions can be found elsewhere (see Lundberg, 2005). The endocrine system is a system of glands which release hormones into the body, via the bloodstream, to regulate bodily functioning. The major endocrine glands are shown in Figure 2.2. The hypothalamus, part of the limbic system, is located in the lower mid-part of the brain and is the primary link between the endocrine and nervous systems.

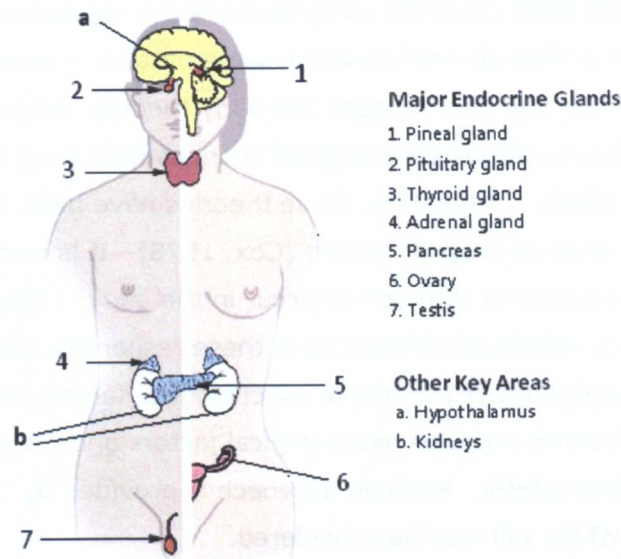
Figure 2.2. The Position of Major Endocrine Glands

Figure 2.2. This image shows the position of the major endocrine glands for males (left side) and females (right side). The position of the hypothalamus and kidneys are also shown for reference.

Adapted from "An introduction to human anatomy and physiology" by D.L. Heiserman, 1997-2009, retrieved from "http://www.free-d.net/sweethaven/science/biology/anatomyphysiol/Human01_LessonMain.asp?iNum=0603". Copyright 2005 Sweet Haven Publishing Services.

The main part of the endocrine system implicated with stress is the hypothalamic-pituitary-adrenalcortical (HPA) axis. This is sometimes called the LHPA axis, where L stands for limbic, indicating that the stress response begins in the limbic system. That is, when one experiences stress, the hypothalamus arouses the pituitary gland which secretes the adrenocorticotrophic hormone (ACTH); this stimulates the adrenal gland and the production of hormones such as cortisol, noradrenaline, and adrenaline. The introduction of these chemicals in times of stress may be adaptive. For example, they enable individuals to fight or flee from a stressor, getting the body ready for physical exertion and enabling faster reactions by constricting non-essential bodily functions.

The response-based theory is intuitively interesting. It specifies that activation of the stress system leads to adaptive changes that help improve chances of survival, such as providing energy to the muscles to enable the individual to escape the stressor. It also acknowledges that experiencing a prolonged or excessive stress response may lead to more significant changes, including

mental and physical ill health (Pervanidou, 2008). The early approaches to stress imparted a greater understanding of stress at the time, linked stress with illness, and provided a foundation for research to be built on. However, these early theories have been criticised partly because the responses to stress are inconsistent, that is they do not follow the same pattern in everyone (Mason, 1975; Mason, 1971), and also because the early theories lacked a full appreciation of the numerous physiological changes that occur in response to stress (Asterita, 1985). In addition, these theories have been criticised for ignoring the role of psychological factors (Cox, 1978). It is now generally accepted that physiological changes do occur in the body in response to stress, although there are individual differences in these responses (Sapolsky, 1994). It has been acknowledged that the role of psychological factors cannot be ignored, thus an approach which includes psychological factors and recognises individual differences would be useful. Such an approach is provided by the transaction model of stress, which will now be considered.

2.6 Psychological Definition of Stress: A Transactional Approach

The central tenet of the transactional approach is that stress is an interactional process occurring between the individual (in terms of his/her coping resources) and the environmental demands (stressors). It was first described by Lazarus & Folkman (1984, p.294):

"Transaction implies a newly created level of abstraction in which the separate person and environment elements are joined together to form a new relational meaning. In interaction, particularly in statistical analyses that fractionate the variances of a cause-and-effect-sequence (as in analysis of variance), the interacting variables retain their separate identities. From a transactional perspective, the characteristics of the separate variables are subsumed".

Thus, this model considers not only biological responses to an external stressor, but also psychological responses/factors, and the interaction between stressor, physiology, and psychology. This transactional definition is generally accepted within psychology and has been commonly cited (Cassidy, 1999). Figure 2.3 shows a transactional model of stress presented diagrammatically. This illustrates that stress occurs when there is a mismatch or imbalance between the real or perceived demands (stressors) and the individual's real or perceived capability to cope with these demands (Lazarus & Folkman, 1984).

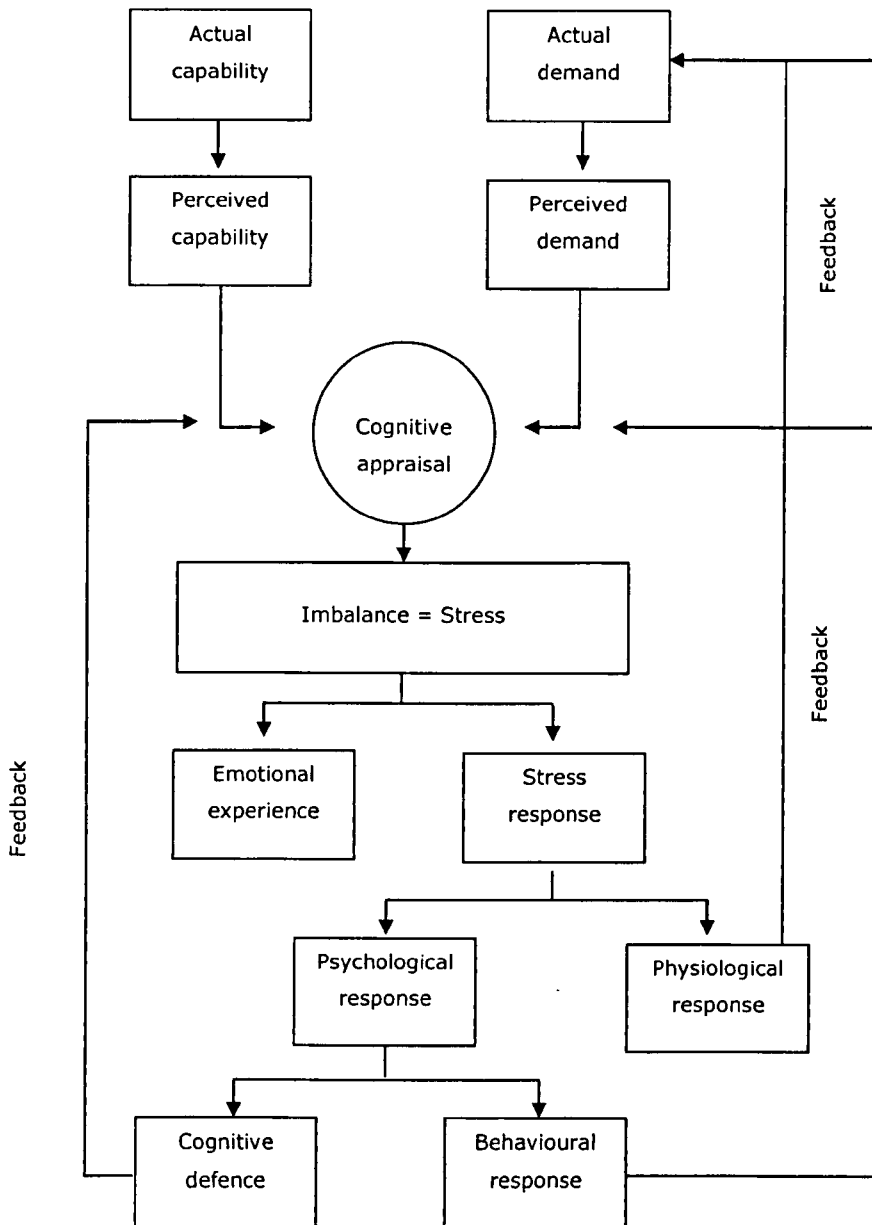
Figure 2.3. The Transactional Model of Stress

Figure 2.3. Flowchart illustrating the Cox and Mackay Man-Environment Transaction. The flowchart shows that stress is an individual perceptual phenomenon. Cognitive appraisal is an assessment by the individual about whether they think they can cope with the demand (a factor in the environment). If the individual appraises the situation so that there is an imbalance between perceived demand and perceived capability, stress results. The response to stress is shown in psychophysiological changes. Feedback occurs at all stages throughout the model.

Reproduced from "Stress" by T. Cox, 1978, p.19. Copyright 1978 by Macmillan Press, Ltd.

An important part of the transactional framework is that it involves appraisal. During this appraisal process, the individual evaluates the situation and considers the coping resources that he/she has to deal with the situation. If there is a mismatch between demand and coping resources, for example when a person believes that he/she lacks the resources or skills to cope with the potential stressor, the individual perceives the situation as stressful and experiences a stress response (Seiffge-Krenke, Aunola, & Nurmi, 2009). This appraisal is informed by numerous factors which are individual to the person, arising from their perceptions about their past and future (Briner et al., 2004).

The transactional approach to stress is useful as it provides an understanding of why individuals differ in terms of their perception of stress and their responses to potentially stressful situations. Research has found appraisals to influence children's responses to certain potentially stressful situations, such as: divorce (Mazur, Wolchik, Virdin, Sandler, & West, 1999), sexual abuse (Spaccarelli, 1994) and chronic illness (Ebata & Moos, 1994). However, the cognitive appraisal process is likely to vary across different age groups of children (Grant et al., 2003). For example, in very young children, factors such as neglect or maternal separation undoubtedly cause stress, but it is unlikely that infants cognitively appraise these situations as stressors. The usefulness of this model in stress research with children has therefore been questioned (Grant et al., 2003). Nevertheless, the transactional model goes beyond being merely a biological or psychological model, and considers the impact of a range of factors which influence the stress response. The biopsychosocial approach also considers a range of factors, which will be presented in the next section.

2.7 Psychological Definition of Stress: A Biopsychosocial Approach

From the discussion of the stimulus, response, and transactional models of stress, it is clear that stress is more than purely a biological or psychological phenomenon, but rather there is an interaction between biological, psychological, and social factors. George Engel was the first to document the biological, psychological and social dimensions of illness in a model which subsequently became known as the biopsychosocial model (Borrell-Carrió, Suchman, & Epstein, 2004).

Research has shown that psychosocial factors influence biological responses to stress. Chida & Hamer (2008) conducted a large meta-analysis of 729 studies which examined physiological stress responses to eight different chronic

psychosocial factors in healthy populations. The psychosocial factors considered were: (a) job stress; (b) general life stress; (c) depressive mood and hopelessness; (d) anxiety, neuroticism, and negative affect; (e) hostility, aggression, or Type-A behaviour; (f) fatigue, burnout, and exhaustion; (g) positive psychological states or traits; and (h) other psychosocial factors. The main findings showed different stress response patterns across the following areas: general life stress; anxiety, neuroticism, and negative affect; hostility, aggression, or Type-A behaviour; and positive psychological states or traits. This demonstrated that different chronic psychosocial factors led to different physiological stress responses and illustrated how each component of the biopsychosocial model was important. Each of these factors - biological, psychological and social, will be very briefly considered.

2.7.1 Biological

From a biological perspective stress influences physiological processes, as discussed in Section 2.5, stress may lead to biological changes in the body. These physiological responses to stress have also been linked with both the onset of illness and the progression of existing illnesses (Stowell, McGuire, Robles, Glaser, & Kiecolt-Glaser, 2003), perhaps in part due to the changes in immune functioning in response to stress (see Segerstrom & Miller, 2004). This has led to a field of work called psychoneuroimmunology (PNI). PNI has shown that stress (and other psychological states) impact on the body's nervous system which in turn influences an individual's immune system response, which can lead to illness (Herbert & Cohen, 1993). It is not only physical illnesses that have been linked with stress, stress has also been noted as a non-specific risk factor for psychiatric illness (Kaufman, 2006). From the study of both animals and humans, research has shown that early adverse experiences, such as abuse, neglect, or being separated from a caregiver, affect adult responses to stress. This may be because of changes in endocrine function (Levine, 2005). The key point to note is that biological changes occur in humans in response to stress, which may (at least for some individuals, in some instances) have long term effects on the body.

2.7.2 Psychological

As well as biological responses to stress, many psychological influences have also been considered. It has been noted that factors that individuals see as stressful may differ depending on, for example, on their beliefs, values, ethnicity and culture (Aranda & Knight, 1997). Similarly, many empirical studies have

shown that stress is influenced by psychological factors, for example personality, (Vollrath, 2001), optimism/pessimism (Chang, 2002; Grote & Bledsoe, 2007) and perceived control (Folkman, 1984).

2.7.3 Social

Social factors have also been shown to be important in stress. People interpret stress in the context of social, political, economic and other extraneous factors (Arthur, 2004), which may also be causes of stress. Social support has been widely studied and it has clearly been demonstrated that support from other people is helpful in coping with stress and may even influence health outcomes. For example, the tumour size in women with breast cancer was found to be smaller in single women who had social support, compared to single women without an adequate support network (Kricker et al., 2009). Support can also act as a buffer which aids individuals to appraise a situation as not being stressful (Thoits, 1995). This illustrates that psychological factors can influence how individuals cope with stress; coping with stress will be reviewed in the next section.

Section 3

Coping with Stress

2.8 Conceptualising Coping

Coping has been studied widely within psychology for over forty years. During this period, there has been a shift from viewing coping as a stable, trait-like, state to seeing it as a process which differs across and within individuals (Kameny & Bearison, 2002). It is now widely believed that coping is the process (the thoughts and actions) individuals use to manage stress, which is changeable over situations and time. Lazarus & Folkman (1984, p.141) describe coping as, *"Constantly changing cognitive and behavioural efforts to manage specific external or internal demands that are appraised as taxing or exceeding the resources of a person"*. This definition has been generally accepted within psychology, although some researchers suggest that there is disagreement about how coping is conceptualised (Skinner, Edge, Altman, & Sherwood, 2003). This is particularly pertinent for coping in childhood, as the definition does not consider factors which develop during childhood, such as cognitive processing abilities and language (Skinner & Zimmer-Gembeck, 2007).

It is also generally accepted that there are numerous potential strategies individuals can use to cope with stress. Much research has considered these different strategies or domains of coping in various populations, such as, adolescents (e.g., Hampel & Petermann, 2006); hurricane survivors (e.g., Glass, Flory, Hankin, Kloos, & Turecki, 2009); and families living with cancer (e.g., Patterson, Holm, & Gurney, 2004). One commonly cited distinction in coping research is between problem focused coping and emotion focused coping (Carver, 1997). Problem focused coping is active attempts or strategies which aim to manage or alleviate the stressful situation (e.g., finding out information to solve the problem, asking others for help). Whereas emotion focused coping refers to strategies which aim to release or manage the negative emotions caused by the stressor (e.g., crying), or by trying to change the way one thinks about the problem (e.g., denial, positive comparison, distancing). The latter, changing or challenging one's thoughts or beliefs, is sometimes called appraisal focused coping (Weiten & Lloyd, 2006). Not all coping strategies are useful for all problems. For example, denial or wishful thinking may not be useful in the long-term for a teenager who finds herself pregnant, as this may influence whether or not she can terminate the pregnancy. Emotion focused coping is often more appropriate when circumstances are unlikely to change (Folkman & Lazarus, 1980). It has been proposed that emotion focused coping develops later than problem focused coping (Compas & Wagner, 1991).

Problem and emotion focused coping strategies are not the only coping dimensions, numerous other dimensions of coping have also been proposed. Indeed, over 400 different coping categories have been identified, showing that there is variation in how coping is conceptualised (Skinner, Edge, Altman, & Sherwood, 2003). Skinner and colleagues group the numerous coping strategies into a smaller number of higher-order categories: problem-solving, support-seeking, escape, distraction, cognitive restructuring, rumination, helplessness, social withdrawal, emotional regulation, information-seeking, negotiation, opposition, and delegation. Skinner & Zimmer-Gembeck (2007) tabulate these higher-order categories and include complementary adaptive functions (see Table 2.1). Coping dimensions have been widely researched in both adult and child participants. The rest of this chapter will focus on coping in childhood.

Table 2.1. Links Between Higher-Order Families of Coping and Adaptive Processes

Family of coping	Family function in adaptive process	Adaptive process	Also implicated
Problem-solving Strategizing Instrumental action Planning	Adjust actions to be effective	Coordinate actions and contingencies in the environment	Watch and learn Mastery Efficacy
Information-seeking Reading Observation Asking other	Find additional contingencies	↓	Curiosity Interest
Helplessness Confusion Cognitive interference Cognitive exhaustion	Find limits of actions		Guilt Helplessness
Escape Behavioural avoidance Mental withdrawal Denial Wishful thinking	Escape noncontingent environment		Drop and roll Flight Fear
Self-reliance Emotion regulation Behaviour regulation Emotional expression Emotion approach	Protect available social resources	Coordinate reliance and social resources available	Tend and befriend Pride
Support-seeking Contact-seeking Comfort-seeking Instrumental aid Social referencing	Use available social resources	↓	Proximity-seeking Yearning Other alliance
Delegation Maladaptive help-seeking Complaining Whining Self-pity	Find limits of resources		Self-pity Shame
Social isolation Social withdrawal Concealment Avoiding others	Withdraw from unsupportive context		Duck and cover Freeze Sadness
Accommodation Distraction Cognitive restructuring Minimization Acceptance	Flexibly adjust preferences to options	Coordinate preferences and available options	Pick and choose Secondary control
Negotiation Bargaining Persuasion Priority-setting	Find new options	↓	Compromise
Submission Rumination Rigid perseveration Intrusive thoughts	Give up preferences		Disgust Rigid perseverance
Opposition Other-blame Projection Aggression	Remove constraints		Stand and fight Anger Defiance

Reproduced from "The Development of Coping" by E.A. Skinner & M.J. Zimmer-Gembeck, 2007, *Annual Review of Psychology*, 58, p.126. Copyright 2007 Annual Reviews.

2.9 Coping With Stress in Childhood

Band and Weisz commented, *"It is common knowledge that children experience stress, but we know surprisingly little about the nature of stress and coping among most children in everyday life"* (Band & Weisz, 1988, p.247). At around the same time, seminal journal articles (e.g., Compas, 1987) and books (e.g., Garmezy & Rutter, 1983) all stated that more research exploring coping in childhood was necessary. Subsequently, a large body of research exploring coping in childhood has been conducted.

This research has mainly focused on individual differences in coping strategies and various outcomes. A smaller body of research has investigated associations between coping and factors such as parental practices and early temperament (Skinner & Zimmer-Gembeck, 2007). As a whole, research has shown that children's ability to cope with stress is influenced not only by age and maturity but also by a number of mediating and moderating variables, including family environment, peer relationships, and both academic and non-academic performance (Faust & Katchen, 2004).

Band & Weisz (1988) noted that even children as young as 6-years of age were able to describe 'everyday' stressful situations and to discuss and evaluate how they coped with these. In their research, Band and Weisz asked 73 school children (aged 6, 9 and 12) to describe a situation that had occurred within the last year which had made them feel 'bad, unhappy, or scared'. Children were asked about events in relation to six different areas, when: (a) they were separated from a friend; (b) they had an injection at the doctors; (c) a parent or teacher was mad; (d) other children said mean things; (e) they got a mark at school that they did not like; and (f) they were hurt in an accident. Children were also asked to describe how they coped with this event, using several prompts. Children's responses were coded into three coping domains, loosely based on Lazarus' ways of coping model (Folkman & Lazarus, 1980; Lazarus & Folkman, 1984): primary coping, secondary coping, and relinquished control. Band & Weisz found that primary coping occurred when the child tried to change the stressful event. Primary coping included four elements: direct problem solving (e.g., telling others to stop being mean), problem focused crying (e.g., crying to get an adult to help the child stop being bullied), problem focused aggression (e.g., hitting a child who has been bullying them), and problem focused avoidance (e.g., staying away from the bully).

Secondary coping occurred when the child made adjustments or accepted circumstances as they were. Secondary coping included five elements: social/spiritual support (e.g., telling others about the problem), emotion focused crying (e.g., to release emotions or gain comfort from others), emotion focused aggression (e.g., hitting a wall to let out feelings), cognitive avoidance (e.g., watching TV), and pure cognition (e.g., daydreaming, telling oneself it is not such a bad mark). The final category was identified as relinquished control coping, where there was no apparent goal, where the individual gave up, or made no efforts to reduce the stress.

Band & Weisz (1988) found that children reported using different styles of coping for different stressors or events and few children relinquished control or made no efforts to reduce the stress. The authors highlighted that different styles of coping may depend on the amount of control that children had over the situation. For example, children who described a school failure (something that was within his/her control) tended to report primary control coping strategies, for example, that they would work harder to get better marks in future. On the other hand, children tended to report using secondary control coping, such as thinking happy thoughts, when they had less control over a situation, such as getting an injection.

Although some children across age groups reported using both primary and secondary coping strategies, secondary control coping was more common in older children. The authors proposed that this may be for several reasons, including that secondary control coping is a more abstract process, usually involving unseen processes (cognitions or thoughts) such as reframing an unfortunate event to view it positively rather than negatively or lowering one's expectations to avoid future disappointment. The authors argued that it may be that younger children are unable to understand or appreciate abstract concepts such as this because of their level of development. Alternatively, Band and Weisz state that, it may be that children do not have the linguistic capabilities to describe secondary coping, or have not yet learned that primary coping does not always work, for example it may be that older children now know that crying at the doctors does not stop them having to have an injection! Kochenderfer-Ladd & Skinner (2002) found that children use more problem-solving coping as they increase in age, as they are increasingly able to ask questions about events, develop expectations about what will happen and seek clarification about what

has happened. Further discussion of children's development is provided in Chapter 3.

The aforementioned article by Band & Weisz (1988) can be praised for investigating coping from the child's perspective and acknowledging that even young children can experience stress. However, although the study highlighted that there were age differences in children's coping, it only briefly contextualised these within the theories of child development. Further exploration of children's coping in relation to theories of development is needed.

In an article discussing the development of coping, Skinner & Zimmer-Gembeck (2007) identified 44 studies which found developmental shifts in coping across age groups. Three of these studies were with children under the age of 5-years, 28 studies involved children between the age of 5- and 13-years and 13 studies investigated coping in adolescence. Skinner and Zimmer-Gembeck identified five specific age periods (infancy to toddlerhood, 5- to 7-years, 10- to 12-years, 12- to 16-years, and 16- to 22-years) where coping processes changed. They suggested that the first three of these age periods are the most important where coping develops rapidly. Age differences in coping were described. Preschoolers begin by coping with direct actions, withdrawing from stress, gaining support from others, or distracting themselves with other behaviours. During childhood (5- to 12-years), cognitive coping strategies, such as cognitive distraction, delay, and problem-solving are added to children's coping strategies. Children also increase social support to include peers and other adults as well as parents. Meta-cognitive coping develops during adolescence (12- to 16-years); adolescents begin to regulate their coping actions based on future events or goals, or the effects on other people. As adolescents increase in age, their range of distraction techniques increases and they become more self-reliant. That is, adolescents begin to accept responsibility for solving the problem and self-regulate their emotions through positive self-talk and reframing thoughts. The use of cognitive coping strategies such as decision making, planning, and reflection under stress only emerges in late adolescence and early adulthood (16- to 22-years).

The three most common ways of coping that Skinner & Zimmer-Gembeck (2007) identified across studies were support seeking, problem-solving and distraction. In terms of social support, approximately 50% of the studies in the childhood category (aged 5-13) found differences across the age groups. Of these studies,

half reported increases in social support with increasing age and half reported decreasing social support with increasing age. Under closer inspection of these studies, Skinner and Zimmer-Gembeck identified that children (aged 5-7 and 9-12) reported reduced support from adults, but increased support from friends. This increase in support from peers continued during early adolescence. A difference in the type of support was found across stressors. Adolescents (aged 10-16) became increasingly aware of who was the best person to seek support from and knew when to seek support from adults.

Problem solving was considered in 28 studies and, whilst comparisons were difficult due to the numerous subscales used, age differences were found. Proxy measures were usually used for children under the age of 8-years. Problem solving was not often used in children under 8-years and no age differences were found. Children, aged over 6-years did use cognitive problem solving, such as identifying other ways to deal with the problem. The use of cognitive activity to master the problem (including self-reliance, cognitive decision making strategies, practical/mastery problem solving) increased with age in 11 studies of children aged 4- to 18-years.

Behavioural distraction (e.g., keeping busy or playing games) and/or cognitive distraction (e.g., thinking about other things, thinking about something fun, trying to forget the stressor) was considered in 25 studies. Behavioural distraction increased during infancy and between the ages of 6- to 13-years. There were no changes in the use of behavioural distraction from the ages of 4- to 6-years or 12- to 18-years. It was also found that the use of cognitive distraction strategies increased during childhood. Again, there were problems with numerous subscales being used which possibly influenced the results. Age differences were also noted in other areas. For example, rumination increased during adolescence, and adolescents were more likely than younger children to cope using rumination. Adolescents were also more likely than younger children to use aggression, cognitive restructuring, blaming others and self-reliance.

Although the review by Skinner & Zimmer-Gembeck (2007) provides an interesting account of the development of coping, the authors acknowledge, as do other stress researchers (e.g., Rydstedt, Devereux, & Furnham, 2004), that the literature is dominated by cross-sectional research, with few longitudinal studies. Skinner and Zimmer-Gembeck also noted the difficulties that they had in integrating the literature, because of the vast number of different coping

measures used across studies. A brief account of the main measures of stress and coping will now be provided in the following section considering stress research with children.

Section 4

Stress and Coping Research with Children

2.10 Measuring Stress

A number of ways of measuring stress in research with children have been developed and each of these fits into the models of stress previously discussed in Section 2. Within the stimulus-based model, typically, researchers have used a questionnaire approach to assess life events or daily hassles faced by the individual (e.g. Coddington, 1972). Similarly, within the transactional framework, children's perceived stress and coping strategies have usually been assessed using questionnaires (e.g., The Kids Coping Scale (KCS) Maybery, Steer, Reupert, & Goodyear, 2009). In contrast, within the response-based model, physiological or neurobiological measures of stress have been taken. These are less frequently used in childhood research, as they are based around the physiological changes which occur in response to stress (discussed in Section 2.5) and include measures of neuroendocrine hemodynamic activity. For example, levels of cortisol have been measured from blood or saliva (Pfeffer, Altemus, Heo, & Jiang, 2007). Blood pressure and heart rate are also physiological measures of stress, as are measures of galvanic skin response (GSR); these observe activity in the ANS by assessing the levels of moisture on the skin. Obtaining such physiological measures is often completed in a laboratory setting. Physiological measures are, arguably, valuable in providing objective measurements of stress levels. However, a number of factors other than stress may also impact on the levels of hormones and obtaining measurements in a laboratory setting may be distressing for children in itself, causing anomalies in the data. For this reason, the following section will focus on non-physiological measures of stress, in particular life event and daily hassle measures.

2.11 Research on Childhood Stress

Within the stress literature, a distinction has been made between stressful life events and daily hassles. Life events are major events that occur occasionally, such as parental divorce or birth of a sibling. Daily hassles are experiences of

daily living that an individual appraises as important and which can cause distress, such as falling out with a friend or worries about one's physical appearance. Measures, usually self-report questionnaires, have been developed to rate both life events and daily hassles.

Coddington (1972) developed the Life Events Questionnaire (LEQ) for children and adolescents. This and other early scales have been used to assess stress in children, although they do have limitations. For example, they were largely developed from an adult perspective of childhood stressors (that is, not based on items derived from children themselves). In a review of stress measures designed for child and adolescent populations numerous additional problems were identified (Grant, Compas, Thurm, McMahon, & Gipson, 2004). For example, Grant and colleagues found that many studies used inappropriate measures of stress given their theoretical definition of stress, few scales reported how they were developed or provided psychometric data, and most measures tended to be developed for White middle-class adolescents. There was no adequate measure of stressors for young children or other ethnic or socioeconomic groups.

Despite some limitations, measures have been useful to indicate relationships between stress and other issues. There is a large body of literature highlighting the links between stress and factors such as academic achievement (e.g., Kristensson & Hlund, 2005) and behavioural disorders and depression (Compas, 1987). A further body of work explores the relationship between stress and psychopathy in child and adolescent populations (see review Grant et al., 2003). However, many studies have relied on proxy ratings of childhood stress, obtained from parents, teachers, or healthcare professionals. Yet the accuracy of proxy ratings is not clear as the next section highlights.

2.11.1 Differences in adult and child perceptions of stress

Some studies have used proxy ratings of childhood stress, for example, Parker et al. (2003) asked parents to rate their child's emotional stress levels over a 10-month period to investigate examination stress in children in Singapore. In general, they found no effects of examinations on childhood stress. However, results may have differed if children were directly asked about their own stress.

Studies which compare child and adult perceptions of childhood stress indicate that these differ. For example, Anderson & Jimerson (2007) compared children's

(aged 5-6 and 9-10) perceptions of 20 stressful life events compared to their teachers ratings of children's perceptions of the same stressors. They found that teachers were able to successfully rate younger children's experiences more than older children's experiences. However, teachers underestimated the stressfulness of factors such as being sent to the headteacher, having an operation, and being caught stealing, but overestimated the stressfulness of factors such as the birth of a sibling and visiting the dentist.

In another study, Kosub & Kosub (1982) asked 135 children aged 6-16 with insulin dependent diabetes to list factors that they perceived as stressful, after being provided with a simple definition of stress. Children as young as 6-years of age could understand a definition of stress and list factors that they perceived as stressful. Kosub & Kosub compared children's factors with items in the aforementioned Coddington's LEQ, which was developed from an adult perspective of childhood stressors. Kosub & Kosub found that children generated additional items to those listed in the LEQ. Children also perceived the level of stress of individual items to be different than Coddington had rated from his adult perspective. The differences may have been because children had a chronic illness, or because perceptions of stress change over time, or may reflect the differences between adult and child conceptions of stress.

2.11.2 Recently developed childhood stress questionnaires

More recently, scales have been developed to measure stress in children from the child perspective. For example, Osika, Friberg, & Wahrborg (2007) created a brief self-rating test (the Stress in Children [SiC] questionnaire) to assess stress in Swedish children aged 9-12. This was a well developed scale as children were involved in the construction of the questionnaire and psychometric properties were determined. The researchers compared the SiC with existing measures of depression, anxiety, anger, disruptive behaviour, and negative self perception, in addition to salivary cortisol and urinary catecholamine measures. Although there were limited relationships identified using physiological measures, the questionnaire was found to have satisfactory reliability and validity (using the Beck Youth Inventories of Emotional and Social Impairment – BYI). However, this scale was developed for older children in Sweden, and has not been validated in the UK child population.

A review of the literature, conducted for this thesis, has shown that there are no child self-report stress measures available for children under the age of 9-years.

This may be, at least in part, due to the cognitive ability of children and their ability to read and respond to questionnaires. It has been proposed that self-report questionnaires are only considered useful for children over the age of 7-years of age (Tufnell & Dejong, 2008). Further research exploring alternative methods of assessing stress in the younger population would therefore be useful.

2.11.3 Research investigating stress without mentioning stress

Before developing a measure of stress, it is necessary to identify the factors that children perceive as stressful. Lewis, Siegel, & Lewis (1984) developed the Feel Bad Scale (FBS). Lewis and colleagues investigated children's views of psychological stress by asking children: *"What happens that makes you feel bad, nervous, or worried"*. This generated 20 items that were tested on nearly 2,500 10- to 11-year old children. Factor analysis revealed that children's stressors related to parental conflict, self image, peer group relations, and geographic mobility.

Whilst this study did show that children aged between 10 and 11 had an understanding of stressors, it should not be assumed that these children understood the term stress as no direct reference to stress was made. Nevertheless, the FBS has been used in subsequent stress research. For example, Sharrer & Ryan-Wenger (1995) used the FBS in a 2-year longitudinal study of children aged 8-13 in the USA. They found that children reported that the frequency that stressors occurred remained the same over the 2-year period, but that the severity of stressors significantly decreased. Gender differences were also identified; boys tended to watch television to cope with stress or express emotions by yelling or screaming, whilst girls tended to cuddle pets or cry.

Another study which attempted to identify children's own views of stress (again without directly using the term stress) asked children, aged 9-11, from the USA, to draw pictures. Children were told:

"Many times children find themselves in situations where they don't know what to do, or they have times when what they usually do doesn't work for them. For this project, I'd like you to think about a time when you felt something like that, and then draw a picture of that experience"

(Jacobson, 1994, p.96).

Using phenomenological analysis, Jacobson found that children reported numerous stressors which were grouped into 17 subcategories and three main dimensions: feelings of loss, threat to self, and being hassled.

Similar research that has considered coping in children has focused on feelings rather than stress per se. For example, Dibrell & Yamamoto (1988) interviewed 46 children, aged 4-10, in small groups and asked them to describe situations that made them sad, worried, upset or angry. This research has shown that even children as young as four have an understanding of stress and coping. The authors can be praised for studying stress in such young children, who are usually overlooked in stress research, and for asking children directly rather than using proxy measures. However, this study did not look at children's understanding and experience of stress per se; this remains an under-explored topic.

Another study, which again did not refer to stress per se, but nevertheless deserves attention, was conducted by Sorensen (1993). She explored the daily stressors and coping responses of 42 American elementary school children (aged 7-11) and their parents, using structured diaries and drawings over a six-week period. Sorensen asked children to complete three open ended statements: "(1) *This is what upset me today...*, (2) *This is what I did about it...*, and (3) *The best part of today was...*," and then gave children a space to do an optional drawing. Parents were asked similar questions, but this time about their child (e.g., "*This is what upset my child today...*"). Analysis of over 1200 diary entries showed that children had an understanding of stress, which differed from their parents' views. Sorensen categorised children's stressors into 16 categories relating to situation (e.g., school, home chores), self (e.g., disappointment, physical symptoms), and others (e.g., friends, siblings).

Although parents correctly reported that children felt stressed about perceived disappointment and school, child and parental main stressors differed. Parents reported that children felt stressed about illness and parental demands, whereas children were actually most stressed about their friends, siblings, and disappointment. Whilst this study can be commended for the use of novel methodology, which used drawings to help children to illustrate their perceptions of stress, the use of drawings in the study was limited, as over 70% of the drawings were coded as not related to the experiences of stress and coping that children had reported through the diaries. The study was also restricted to older

children in the USA and it is not clear whether children in the UK experience stress in the same way, because of cultural differences across countries. The study was also limited as it did not use the word stress in the children's diaries (but rather used the term upset). In a pilot study, Sorensen found that the term upset more accurately provided responses in terms of stressors than the term worry. However, although the author argues that children's responses to the term 'upset' were stressors, it may be that this is measuring something other than stress.

2.11.4 Research asking children about the concept of stress

A small body of research has used the term stress with children. For example, Ryan-Wenger, Sharrer, & Campbell (2005) conducted two studies looking at stress from the perspective of 7- to 12-year old children in the USA, by directly asking children, in the year 2000, about what things make them stressed. Children identified 908 stressors in 54 different categories. Ryan-Wenger and colleagues then compared children's perceived stressors to the stressors derived from items included in six stress measures developed between 1972 and 1997. Looking at the differences in children's reported stressors over the past 30-years, the authors noted a number of changes. For instance, some of the stressors that were reported by children interviewed by Ryan-Wenger and colleagues were not incorporated in the earlier scales including: being alone, tests, family fighting, too many things to do, and boyfriend/girlfriend problems. In fact, all six previously developed scales only incorporated half of the stressors that children interviewed by Ryan-Wenger and colleagues reported, with some scales including as little as one quarter of the stressors identified by children in Ryan-Wenger's dataset. The differences identified may be because children provided direct information about their own stressors rather than being derived from adults' opinions about childhood stressors (five out of the six previously developed scales had been produced by adults without child input). Alternatively, it may be that new stressors emerge over time. However, not all research has shown differences in stressors over time. Anderson, Jimerson, & Whipple (2005) replicated a study conducted by Yamamoto and Byrnes in the 1980s and found that children's ratings of the stressfulness of 20 potential stressful life events were similar across cohorts. However, this research was based on a list of stressors developed by an adult in the late 1970s. Anderson and colleagues note that the scale is not a comprehensive representation of modern day childhood stressors. As is clear from the results of these studies,

the existing measures of childhood stress do not provide comprehensive representations of children's stressors in today's society.

A relatively recent exploratory phenomenological study (Brobeck, Marklund, Haraldsson, & Berntsson, 2007) provides a first step in developing our understanding of modern childhood stressors. Brobeck and colleagues provide an account of everyday stress in 29 children aged 11-12 from Sweden. They found that children did experience stress, both in their own lives and through experiencing significant others' stress, particularly describing their parents and to a lesser extent their friends stress. Children described their personal experiences of stress in relation to two main areas: (1) fear of being late and (2) having too much to do or too much to think about at the same time, this included where children were concerned if they were behind their peers in their schoolwork. Children also talked about the physical and mental consequences of stress such as headaches and acknowledged that stress could be both negative and positive. Again, this study shows that children are able to describe and reflect upon daily stressors. However, it was limited to a small number of Swedish children aged 11-12. It would be interesting, as well as useful and important, to further explore how children's understanding of stress develops, particularly in younger children and to identify whether there are any differences in the types of things that children perceive as stressful in the UK.

2.12 Directions for Future Research

As documented earlier, the term stress is widely used within Western society. However, as illustrated throughout this chapter, there is a paucity of research exploring young children's perceptions of stress, both in themselves and in other people. Further research exploring children's understanding of stress would, arguably, be worthwhile for both theoretical and practical reasons.

Practically, knowing about children's perceptions of stress may be important in helping children to cope with stress. It is important to help children to cope with stress, not least because of the consequences of stress. For some school-aged children, stress interferes with their own learning, it may also have implications for others in their class, for example, if children 'act out' or regress as a response to the stressor (Blom, Cheney, & Snoddy, 1986). It is also important to research stress in children because of the possible links between stress and illness. Numerous studies have reported correlations between stress and physical health in adulthood, including increased rates of mortality following

psychosocial stress (Ickovics et al., 2001; Schulz & Beach, 1999). The links between childhood stress and illness are less well studied, although research has shown that stress in childhood may lead to increased rates of upper respiratory illnesses (Cobb & Steptoe, 1998) and increased frequency of illness and changes in immune function (Caserta et al., 2008). In addition, childhood stress has been linked to psychosomatic symptoms such as headaches, stomach pain, tiredness or dizziness and stress often presents as such in children (Sharrer & Ryan-Wenger, 2002). In relation to psychological wellbeing, links have also been made between child and adolescent stress and psychopathology (Grant et al., 2003). Knowing about children's experiences of stress may help healthcare professionals to provide appropriate support and thus may help prevent stress related childhood illnesses. Knowledge may also be used to help children (and their parents) to make decisions about their life choices which have the potential to influence their health and well-being not only during childhood but also into their adult lives (Brobeck et al., 2007).

Consideration of understanding and experience of stress in childhood is also important theoretically, in terms of developing an understanding of the conceptualisation and experience of stress across the lifespan. This may also help in designing age-appropriate stress interventions for children.

2.13 Conceptualisation of Stress Used Throughout the Thesis

It has been argued that research is hindered when authors do not state how they have defined stress or the theoretical framework that they have used. In this chapter, it has been acknowledged that there are a number of definitions and models of stress and that stress may be viewed from different perspectives. Rather than provide a single definition of stress for use within the rest of this thesis, all the definitions presented throughout this chapter are accepted as possible. A philosophical approach of critical realism is taken that acknowledges the importance of both lay and theoretical perspectives, this approach has been described by Clark (2003 p. 546).

"Briefly, critical realism is a philosophy of scientific inquiry that has grown out of the weaknesses of positivism and relativism (Phillips, 1990; Schumacher & Gortner, 1992; Clark, 1998; Lincoln & Guba, 2000). It acknowledges that the world exists independently of our knowledge of it (Schwandt, 1997) and can be known, albeit fallibly (Sayer, 1992; Lincoln & Guba, 2000). Importantly, whilst seeking truth, critical realism

recognizes that different representations of truth can exist and it can embrace knowledge developed from a wide range of approaches, including qualitative and quantitative research methods (Dzurec & Abraham, 1993)... In the same manner, from a critical realist perspective, both professional and lay perspectives on phenomena are seen as valid, although different, accounts of phenomena (Sayer, 1992; Proctor, 1998). The approach does not attribute absolute priority to lay beliefs and constructs but views them, along with other discourses (including professional ones), as being part of a range of possible representations (Sayer, 1992; Wainwright, 1997; Proctor, 1998)".

A distinction is however made between stress and stressors, whereby from this point forward, stressors will be conceptualised as: "*Environmental events or chronic conditions that objectively threaten the physical and/or psychological health or well-being of individuals of a particular age in a particular society*" Grant et al. (2003, p.462).

2.14 Overview of Chapter

This chapter has presented an overview of the main concepts of stress and coping which are relevant to this thesis. Initially, the chapter explored the definition of stress and considered how stress is conceptualised within Western society. This discussion was important as it demonstrated that the term stress is frequently used in a variety of ways both in the lay population and within academia. Lay perceptions of stress were then considered. It was noted that although there have been some studies exploring adult's understanding of workplace stress (e.g., Harkness et al., 2005; Idris et al., 2010; Kinman & Jones, 2005; Nilvarangkul et al., 2010) there is a paucity of research considering adult's conceptualisation of stress in general and a lack of research exploring children's understanding of stress in the UK.

The main models of stress (the stimulus-based, response-based, and transactional models) were then evaluated in the second section, along with a brief description of the biological, psychological, and social factors implicated in stress. It was concluded that each of these models have helped to develop our understanding of stress over time, although a transactional stance is most widely accepted within psychology today, as this model considers individual differences in the stress response. This review of the psychological models of stress was important in the context of the overall thesis as it demonstrated how stress is

conceptualised and understood within psychology and highlights the importance of a range of factors which influence how stress is perceived within wider society.

The third section of this chapter provided a brief exploration of how coping has been defined within psychology. Two types of coping, problem focused and emotion focused coping, were specifically described, although other types of coping dimensions were acknowledged. One main empirical research study (Band & Weisz, 1988) exploring coping with stress in childhood was presented. It was noted that this research has shown that children use different styles of coping for different stressors and that age differences were evident in the types of coping used. Age differences in coping were reviewed.

The final section of this chapter focused on the measurement of stress. Physiological measures of stress were briefly considered before evaluating questionnaire and interview methods used to measure stress. Measuring stress is problematic and no method is without limitations. One problem identified with childhood stress measures and research was that they frequently do not refer to stress directly. A descriptive account of some of the research exploring stress and coping in childhood and adolescence was provided. It was noted that children do have some understanding of stress, although researchers tended to describe this in terms of 'worry' or 'feeling bad' rather than stress itself. Several empirical studies were presented and discussed, these clearly showed that children do have an appreciation of what stress is and are able to describe stressors and how they cope with these. The review of measures of stress identified that although many scales have been developed for children, many of the early scales were flawed as they were developed from adults' perspectives of childhood stressors. More recently developed scales show promise, but are limited to older children and adolescents outside of the UK. There was also a lack of research exploring coping in young children and there was a paucity of research exploring how coping changed during early to late childhood (from about 4- to 11-years of age). Therefore, it is concluded that further research exploring children's understanding of stress and coping, using child-friendly methodology would be useful.

Although there is a lack of knowledge about children's understanding of stress, children's understanding of health and illness has been widely studied. Consideration of the methods and theory used in the research exploring children's understanding of health and illness, may help in the development of

studies designed to explore children’s perceptions of stress. Therefore, children’s understanding of health and illness is the focus of the next chapter.



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3. HEALTH AND ILLNESS

Section 1

Conceptualisation of Health and Illness

It is acknowledged that conceptions of health have changed throughout history and may differ within and across cultures (Lynch & Medin, 2006). Within Western society, the World Health Organisation (WHO) definition of health is often used which states that health is a "*State of complete physical, mental, and social well-being and...not merely the absence of disease or infirmity*" (World Health Organisation, 1947, p.29). This definition acknowledges that health is more than simply living without illness, although it leans towards a biomedical approach, that is, viewing illness in terms of physical symptoms. The biopsychosocial model (introduced in the previous chapter in relation to stress) goes further than the WHO definition and acknowledges that, in addition to biological aspects of health and illness, psychological and social factors such as social support, personality, cultural beliefs, and cognitions (e.g., beliefs and expectations) also impact on health and illness (Engel, 1977).

The combination of biological, psychological, and social factors are also reflected in lay adults' representations of health, although again there is a bias towards the biological or medical aspects of health (Bury, 2005). In early research on perceptions of health and illness, it was found that adults with serious illnesses viewed 'being healthy' as a multifaceted concept (Bauman, 1961). Since then, there has been a large body of work exploring adults' conceptualisations of health and illness, particularly exploring illness perceptions (see review Hagger & Orbell, 2003). A further body of literature has investigated how children understand health and illness; which is the main focus of this chapter.

3.1 Children's Understanding of Health and Illness

Research exploring children's understanding of health and illness dates back 50-60 years (e.g., Bayer & Snyder, 1950; Rashkis, 1965), although the main body of work has been conducted over the past 30 years. It is important to investigate children's understanding of health and illness as it may inform health education (Bibace & Walsh, 1980; Burbach & Peterson, 1986) and paediatric health care (Rushforth, 1999). This is particularly salient, as research shows

that healthcare professionals are often poor at recognising children's level of understanding (Vacik, 2001). Thus, knowing at what age children understand various concepts can help practitioners to provide age appropriate explanations. Additionally, exploring children's understanding can help practitioners to identify any misconceptions children may hold, particularly, when words have double meanings. For example, Rushforth reports children who have been upset to have 'bugs' 'iron' and 'ivy' (IV) inside them, and Perrin & Gerrity (1981) report a child who believed he had a 'demon' in his tummy rather than an 'oedema'.

These errors of thinking often occur at specific ages, where children are believed to struggle to understand abstract concepts and perceive the world in concrete terms or to have naïve theories of understanding (Yoos, 1994). Therefore, research exploring children's understanding can also add to our comprehension of child cognitive development (Kalish, 1996). In terms of cognitive developmental theories, research has fallen into two broad categories, those that base their research on Piaget's stages of development (the neo-Piagetian approach) and those that use an alternative theoretical framework (Myant & Williams, 2005; 2008). The main non-Piagetian approaches are Werner's theory of perceptual development and the naïve theory of biology, which will be discussed after a brief outline of Piagetian theory.

Section 2

Theories of Development

3.2 Piagetian Developmental Theory

Piaget was one of the most influential researchers in the field of developmental psychology in the 20th century (Beilin, 1992). He attempted to develop an epistemological theory to explain how children's knowledge develops as they increase in age. Piaget believed that children's thinking and reasoning was qualitatively different from adults' (Eiser, 1989). For example, he proposed that young children were transductive, that is, they may reason about a topic, but have no understanding of the underlying mechanisms involved in this process (Piaget, 1928). Piaget developed a framework for understanding children's cognitive development which was summarised by Piaget & Inhelder (1969). The key features of this stage theory are outlined in Table 3.1, including the ages at which Piaget believed children's cognitive abilities may change. The theory

states that children develop and progress through these stages as a result of maturation (biological influences) and interaction with his/her environment.

Table 3.1. Key Developmental Features Within Each Stage of Piaget's Theory of Child Development

Stage	Age	Key developmental points and child's thinking
Sensori-motor	Birth to 18-24 months	<ul style="list-style-type: none">• Pre-occupied with him/herself.• Initially behaviour is reflexive, becoming increasingly symbolic towards the end of the stage.• Initially understands the world through sensations and movements. Learns to connect behaviour with sensation: (e.g., moves hand = shake rattle = hear noise).• Develops object permanence during this stage (the understanding that objects exist when out of sight).• Language begins to develop towards the end of the stage.
Pre-operational	2- to 7-years	<ul style="list-style-type: none">• Symbolic thought, logical thinking and language develop.• Reliance on perceptual (i.e. what they can see/hear) rather than logical reasoning.• Remain egocentric (i.e. only see things through their own perspective).• Key features are that children: are unable to reverse actions (irreversibility); have an inability to tell inanimate from animate objects and have 'magical' thinking (animism); are unable to conserve (unaware that object is the same, despite differences in appearance); and unable to display skill of seriation (order different sized objects).
Concrete operational	7- to 11-years	<ul style="list-style-type: none">• Begin logical reasoning. Still have limited understanding of abstract concepts, but towards the end of the stage, children develop understanding that abstract symbols can represent objects.• During this stage, children develop skills of reversibility (mentally undoing actions), decentration (seeing from others' viewpoints), and conservation.
Formal operational	11+ years	<ul style="list-style-type: none">• Children are able to think in abstract terms, their imagination develops, as does deductive reasoning. For example, older children can plan an activity and think about the consequences of his/her actions before carrying it out.• Tend to reason in a more abstract systematic, logical, and reflective way.

Piaget proposed that the environment does not shape the child, but rather the child is an active participant in his/her own development and that the child takes an active role in constructing knowledge (Greig, Taylor, & MacKay, 2007). That is, Piagetian theory provides a constructivist account of learning whereby children develop their understanding through integrating new experiences with existing knowledge (Bowker, 2007). Piaget believed that up to one third of people never achieve the final 'formal operational' stage.

Very young children (in the sensori-motor stage) may perceive illness in terms of feeling poorly, however, it is difficult to ascertain this through research due to children's lack of language (Borzekowski, 2009). Therefore, the majority of research exploring children's understanding of health and illness has been with children from the pre-operational stage onwards (aged 2+). The seminal research, as well as more recent studies, in the field of children's understanding of health and illness will be considered.

The main early studies exploring children's understanding of illness (Bibace & Walsh, 1980; Perrin & Gerrity, 1981), health (Natapoff, 1978), and both health and illness (Kalnins & Love, 1982) were based on Piaget's theory of development. Since then, Piagetian based theories have been applied to children's development of understanding of many illnesses and long term health conditions. For example: juvenile arthritis (Beales, Holt, et al., 1983; Beales, Keen, et al., 1983; Berry, Hayford, Ross, Pachman, & Lavigne, 1993); cystic fibrosis (Crisp, Ungerer, & Goodnow, 1996); cancer (Chin et al., 1998; Crisp et al., 1996); asthma (Beales, Holt, et al., 1983; McQuaid, Howard, Kopel, Rosenblum, & Bibace, 2002); pain (Gaffney & Dunne, 1986); epilepsy and diabetes (Potter & Roberts, 1984); autism (Glasberg, 2000); HIV/AIDS (Johnson et al., 1994; Osborne, Kistner, & Helgemo, 1993; Schvaneveldt, Lindauer, & Young, 1990; Walsh & Bibace, 1990; 1991); and obesity (Johnson et al., 1994). In addition, the framework has been applied to 'everyday' aspects of illness (Goldman, Whitney-Saltiel, Granger, & Rodin, 1991) and contagion (Kister & Patterson, 1980), as well as concepts of illnesses in general, such as the causes and consequences of illness (Hansdottir & Malcarne, 1998; Koopman, Baars, Chaplin & Zwinderman, 2004). This illustrates the vast array of research with a Piagetian basis.

Within the Piagetian framework, researchers typically use age and developmental stage to explain a child's developing understanding of illness and tend to focus on what children in each stage cannot do or do not know (Rushforth, 1999). For example, Bibace & Walsh (1980) asked children between 3- and 13-years of age about the causes of health and illness, focusing on knowledge (e.g., *'what is a cold?'*), experience (e.g., *'were you ever sick?'*), attributions (e.g., *'how does someone get a cold?'*) and recovery (e.g., *'how does someone get better?'*). They found that children enhanced their understanding of illness with increasing age. Bibace & Walsh (1980) described

six categories of how a child’s understanding progresses. These categories are displayed in Table 3.2.

Table 3.2. Developmental Levels of Conception of Illness

Description	Example
<p>Magical Level – explanation based on association</p> <p>1. Phenomenism.</p> <p>The child describes the illness in terms of any phenomenon he/she has experienced as associated with the illness, without clear differentiation of cause and effect.</p>	<p>"A cold is from...it's when your nose runs".</p>
<p>2. Contagion.</p> <p>The child describes the illness in terms of body experiences or symptoms. He/she associates a specific external cause with the illness, but cannot explain how the cause leads to the effect.</p>	<p>"A cold is a runny nose and it's like from going outside in winter." (How?) "It's from being out in the winter time".</p>
<p>Concrete Level – explanation based on sequence</p> <p>3. Contamination.</p> <p>The child describes illness in terms of experienced symptoms and explains its cause as originating in external acts or situations. The child explains how a sequence of causal events leads to the illness by contacting or involving the body as a whole.</p>	<p>"A cold is from when you're swimming in cold water or out in the snow. It stays in your body...it goes up onto your chest".</p>
<p>4. Internalization.</p> <p>The child describes the illness and explains how a sequence of mechanical actions leads to changes in specific internal body parts.</p>	<p>"A cold is when your nose gets stuffed up and you can't breathe. It's from the germs getting into your nose and lungs and clogging then up so you can't breathe. You sneeze to get the germs out".</p>
<p>Abstract Level – explanation based on interaction</p> <p>5. Physiological.</p> <p>The older child or adult describes an entire internal disease process involving the interaction of multiple causes and effects on multiple body parts.</p>	<p>"A cold is a change within the body resulting in symptoms like coughing, sneezing, running nose, headaches and stuffed up sinuses. You catch the germs that are all around us. Coughing and running nose are the side effects of the body's fighting the off, it makes mucous to carry away the dead germs".</p>
<p>6. Psychophysiological.</p> <p>The older child or adult explains how multiple causes and effects interact by describing transformations at the cellular level.</p>	<p>"A cold is the collection of symptoms that define the immune system's response to an invading virus. The white blood cells. And this happens when the person is experiencing a lot of stress".</p>

Adapted from "Children's perceptions of illness" by R, Bibace, L.R. Schmidt & M.E. Walsh, 1994. In G.N. Penny, P. Bennett & M. Herbert (Eds.), *Health psychology: A lifespan perspective*, p.18. Copyright 1994 Harwood Academic Publishers.

Since this pioneering early work, there has been much research, using a similar framework, to ascertain information about children’s knowledge of health and illness. According to this research, children under the age of 7-years are not

cognitively competent to reason theoretically about illness (Williams & Binnie, 2002). Young children are more likely than older children to believe in concepts of 'immanent justice', that is, that illness is caused by bad behaviour or past mistakes. For example, a 4- to 5-year old child may believe that one gets a cold because of disobeying one's parents (Kister & Patterson, 1980; Perrin & Gerrity, 1981). As children increase in age, their understanding of health, illness and related concepts becomes more sophisticated (Myant & Williams, 2008), less concrete (Campbell, 1975), and less egocentric (Bibace & Walsh, 1980). Older children are less likely to over-generalise concepts such as contagion or contamination, for example, believing that you can catch toothache (Kister & Patterson, 1980). Older children are also more likely to view health and illness as polarised (Myant & Williams, 2005), that is viewing health and illness on a continuum, rather than as two opposing states – so called seeing things in 'black and white' (Bibace & Walsh, 1980; Perrin & Gerrity, 1984).

The aforementioned research demonstrates that neo-Piagetian theory has provided a framework to explain how children learn about health and illness, through a combination of age and experience. Piaget's theory prompted a large body of research, which has had practical implications for healthcare practitioners. For example, it is now known that young children may fear going into hospital because they believe that they can catch illnesses from other people - healthcare practitioners can alleviate this fear by explaining to the child about contagion. This body of work has also helped further develop our understanding of conceptual changes and cognitive development in children (Zhu, Liu, & Tardif, 2009). Piagetian theory is respected for all the aforementioned reasons; however, there are also limitations of the theory.

Piagetian theory has been criticised as it underestimated children's abilities (Kalish, 1996a; Siegal, 1988; Springer & Ruckel, 1992). For example, it has been found that young children are able to understand contagion and only resort to immanent justice explanations when they do not have experience of the illness. Another limitation of Piaget's theory is that it ignored the role of language, social and cultural/living factors (Normandeau, Kalnins, Jutras, & Hanigan, 1998); elements that are important in research with children (Siegal & Peterson, 1999) and which also inform children's understanding (Charman & Chandiramani, 1995). In addition, it has been argued that it is inappropriate to use Piagetian theory in relation to children's understanding of illness, as the theory is about logic and ability for cognitions (thoughts) rather than

understanding (Hergenrather & Rabinowitz, 1991). Hergenrather and Rabinowitz also note the subjective nature of categorising children's views and document several researchers who have placed similar criteria in different stages. For example, immanent justice explanations have been categorised into both preoperational and concrete-operational stages by different researchers. Furthermore, children have been shown to be able to learn health information. Williams & Binnie (2002) found that 4- and 7-year old children improved their understanding of illness through listening to an age appropriate story and subsequent guided group discussions. This indicates that children can progress higher than their developmental stage, with appropriate instruction (Rushforth, 1999). An explanation of how this learning may occur is provided within a social constructivist developmental framework which suggests that learning is a social activity whereby children gain knowledge within a social context (Bruner & Haste, 1987). The idea of stages not being fixed and children being able to move between levels, was also considered by Werner (1957).








3.3 Wernerian Developmental Framework

Some researchers of children's understanding of health and illness (e.g., Bibace, Sagarin, & Dyl, 1998; Koopman, Baars, Chaplin, & Zwinderman, 2004; Raman & Winer, 2002) have considered an alternative developmental framework outlined by Werner (1957). In this framework, it is proposed that there are three stages of development: global, analytic, and synthetic. In terms of understanding of health and illness, Wernerian theory contends that children's knowledge progresses from global generic understanding of the causes of illnesses (e.g., any unhealthy behaviour causes illness), to a more specific analytic understanding (e.g., awareness that intravenous drug use, but not other drug use, can cause AIDS). In the final synthetic stage, children have detailed understanding that includes multiple causes of illness and an understanding of factors which do not cause illness (Sigelman, Maddock, Epstein, & Carpenter, 1993). As mentioned previously, Werner's stages are not fixed. Thus, using the Wernerian developmental framework, in terms of illness understanding, children (and adults) may scientifically reason about illness in one context, but use a more immature explanation in other contexts (Raman & Winer).

Koopman and colleagues tabulated Werner's, Piaget's and their own 'Through the eyes of the child' (TEC) model along with the illness categories identified by Bibace and Walsh (Koopman, Baars, Chaplin, & Zwinderman, 2004). This table

provides a useful comparison of how all three theories are aligned (see Table 3.3).

Table 3.3. Cognitive and Perceptual Development of the Child

Piaget (1927), Cognitive Development	Werner (1948), Perceptual Development	Bibace & Walsh (1978), Illness Category System	Through eyes of the child (TEC) Model	Visualisation TEC Model
Sensori-motor, 0- to 2-years		Incomprehension	Invisible	
Pre-operational, 2- to 7-years	Global, whole qualities are dominant	Phenomenism	Distance	
		Contagion	Proximity	
Concrete- operational, 7- to 11-years	Analytical, perception is selectively directed toward parts	Contamination	Contact	
		Internalisation	Internalisation	
Formal operational, 11 years+	Synthetic, parts become integrated with respect to the whole	Physiological	Body Inside	
		Psycho- physiological	Body Mind Inside	

Adapted from "Illness through the eyes of the child: the development of children's understanding of the causes of illness" by H.M. Koopman, R.M. Baars, J. Chaplin and K.H. Zwinderman, 2004, *Patient Education and Counseling*, 55 p.367-8. Copyright 2004 Elsevier Ireland Ltd.

According to Koopman and colleagues' TEC model, very young children initially struggle with defining illness, perhaps mentioning associations, but usually

giving non-sensical explanations, for example, *"A cold is during vacation"*. Between the ages of 2 and 7 (the period which is defined by Piaget as pre-operational and Werner as global), the TEC states that children begin to associate sounds and actions with illness, although children are generally unclear of the links between these. Children in this age group may have magical thinking. Magical thinking is a type of irrational belief usually centred on correlations between events, for example, *"When you leave the window open, your blankets get cold which can make you a little bit sick"*. Later in this 2- to 7-year old age group, children begin to develop an understanding of contamination through proximity. They are able to begin to describe the causes of illness and describe illness in terms of the people, objects, and events that directly influence them, within their environment. For example, *"When somebody else has a cold and you get close and the next day she is better and you have a cold"*.

In the slightly older age group, from 7- to 11-years (defined by Piaget as concrete-operational and Werner as analytical), Koopman and colleagues found that children's overall definitions develop and extend. Children begin to describe observable bodily functions which can be treated with medications on the body surface and have a wider knowledge about causes of illness. For example, *"Well, when you cough really hard then drops can land on your face, there are germs there and they make you ill"*. Later in this age group, children begin to understand the internal elements of illness and develop an understanding of non-topical medications. For example, *"When you cough those germs go through the air and someone else can breathe them in and then I think it gets in your blood. Then you also get a cold"*. Children begin to understand disease prevention and their own role in illness and begin to use analogies such as *'the heart as a pump'*.

The final two TEC stages are from 11-years of age onwards (which fall within the Piagetian formal operational stage and Wernerian synthetic stage). Here the TEC model specifies that children begin to understand physiological aspects of the body and describe non-visible organs. For example, *"Well the germs get into your blood and the white blood cells will fight them but if they lose you will get ill"*. Children continue to develop knowledge about the controllability and curability of illness and an understanding of their own actions on the outcome of illness. Finally, towards the end of this age group, children begin to integrate the body and mind and become aware that thoughts and feelings can influence

the functioning of the body. This is illustrated in the following: *"Sometimes a cold is not so bad. It depends on how you feel"*.

The TEC model draws on Piagetian and Wernerian theories and provides further evidence which highlights that children's understanding develops with increasing age. However, there is a lack of subsequent research exploring the TEC model's generalisability. That is, this model has successfully integrated concepts across theories, but has not yet accumulated its own evidence base. Therefore, further research should explore the usefulness of this model. In the meantime, some caution should be taken in applying this model to inform future research/practice.

3.4 Naïve Theory

The final theoretical stance which will be considered is naïve theory (also known as framework, schematic, and intuitive theory). In naïve theory, it is proposed that children construct and develop separate theories for different content areas or domains of knowledge (Notaro, Gelman, & Zimmerman, 2001). For example, psychology is separate from biology, which is separate from physics.

The main body of research using naïve theory has investigated biological thinking and reasoning in children (e.g., Inagaki & Hatano, 2002; Kalish, 1996a/b; Medin & Atran, 1999; Siegal & Peterson, 1999; Springer & Ruckel, 1992; Wellman & Gelman, 1992). This research has demonstrated that children's knowledge of biology progresses through two stages. Firstly, young children (from pre-school to approximately 5- or 6-years of age) learn individual facts about biology, for example, babies come from mummy's tummy, animals are living creatures and so on. These fragments of knowledge underpin the adult theory of biology (Wellman & Gelman). However, like Piaget's theory, naïve theory purports that children's reasoning differs from adults' reasoning and develops with increasing age (Buchanan-Barrow, Barrett, & Bati, 2003). According to naïve theory, older children begin to develop a theory of biology by connecting all of these individual facts together. That is, children's naïve knowledge forms a basic framework from which a more detailed biological theory develops (Hergenrather & Rabinowitz, 1991). In other words, the child develops a coherent theory of biological understanding through a process of 'conceptual change' (Carey, 1985). Siegal & Peterson provide an example of conceptual change, proposing that young children have two separate categories of plants and animals. Initially, factual knowledge about plants (e.g., plants grow in soil)

is stored separately from facts about animals (e.g., animals eat food). This is seen as young children find it difficult to identify any similarities between plants and animals until about 6-years of age. At around this age, children begin to restructure and reconceptualise the distinct plants and animals categories, bringing them together into a new category of 'living things'. This process of conceptual change occurs throughout later childhood. Children continue to gain knowledge and experience which adds additional fragments of knowledge to each naïve theory. That is, over time, the naïve theory is elaborated upon, refined and/or reformulated into a more specific detailed theory (Fox, Buchanan-Barrow, & Barrett, 2010), which children can test (Buchanan-Barrow, 2003). Thus, learning occurs through a process of hypothetico-deductive exploration, where the child forms and tests hypotheses. This testing results in children increasing their knowledge and leads to higher levels of thinking within a particular domain. This is in contrast with Piagetian theory whereby maturation leads to higher levels of thinking across domains (Yoos, 1994).

It has been proposed that children's understanding of illness is mediated by a naïve theory of biology (Buchanan-Barrow, 2003; Myant & Williams, 2008). Within a naïve theory approach towards children's understanding of illness, most studies have explored contagion and contamination (Williams & Binnie, 2002), but studies have also investigated children's understanding of genetic disorders and contagious illnesses (Raman & Gelman, 2005); disability (Smith & Williams, 2004; 2005); and mental illness (Fox, Buchanan-Barrow, & Barrett, 2010).

Research has shown that young children are able to reason about the biological causal processes of illness (Williams & Binnie, 2002). For example, pre-school children have been found to have theories about how illnesses, such as the common cold, are transmitted, showing that they have an understanding of contamination (Siegal, 1988; Siegal & Share, 1990) and knowledge that germs cause illness (Kalish, 1996a). It seems that children's understanding of contagion develops with increasing age from physical to biological understanding (Myant & Williams, 2005). Williams & Binnie comment that children hold several theories of knowledge which overlap, but are distinct; these include a theory of contagious illness, a theory of injury, and factual knowledge of non-contagious illness.

Further evidence that children have a naïve theory of biology comes from research which asked children about biological and other explanations of illness.

Findings showed that children preferred biological accounts over social or immanent justice explanations (Raman & Winer, 2002; Springer & Ruckel, 1992). In comparison to the large body of work exploring children's understanding of health and illness within a Piagetian framework, there is much less research using the naïve theory. Although a growing body of work supports naïve theory, there is also research which demonstrates that young children cannot reason biologically and cannot talk about biological causal mechanisms (Au & Romo, 1999; Solomon & Cassimatis, 1999). In addition, although children have been shown to have understanding of some of the biology associated with illness, their understanding of underlying biological and physiological processes has been questioned (Au, Sidle, & Rollins, 1993). Nevertheless, naïve theory is an interesting alternative approach to understanding children's development.

Section 3

Children's Understanding of Psychological States and Emotions

3.5 Children's Understanding of Psychological States

In comparison to the relatively large body of work exploring children's understanding of health and physical illness, there is a paucity of research investigating children's understanding of psychological states. This may be, at least in part, because early research based within the Piagetian framework, showed that only children in the final stage of development (aged 12+) can understand the abstract psychological, affective, and social aspects of illness (Charman & Chandiramani, 1995).

It is important to research children's understanding of psychological states as children with psychological problems are often excluded from their peer groups (Hennessy, Swords, & Heary, 2007). Additionally, understanding children's conceptions of psychological states may help practitioners working with children who have psychological disorders, for example, helping professionals to explain psychological illnesses to children. It also has the same benefits as researching children's understanding of physical illnesses, in terms of helping to further our understanding of conceptual change in development (Charman & Chandiramani, 1995).

Until recently, research that has been conducted on psychological states tended to be based in countries other than the UK and has, on the whole, used very small samples. An exception to the small sample size was a study conducted in Canada, which included 1674 children. Normandeau and colleagues (1998) explored 5- to 12-year old children's conceptions of health in their daily experiences. They found that children as young as 5-years old had multidimensional concepts of health, which included a mental health dimension. The researchers found that there were differences between older and younger children. For example, younger children viewed imminent visible behaviours, such as not following safety rules as dangerous, whereas older children also saw the long term effects of, for example, smoking tobacco. The authors explain that their findings fitted into Piagetian theory in relation to age related change, but also explained their findings in terms of a schema framework (Carey, 1985). That is, they suggested that children group information into schemata based on their experience, which is related to cultural or social expectations. For example, they illustrate that parents may tell young children about safety rules, but older children about the dangers of drugs, hence explaining the age differences identified. Therefore children's understanding results from socialisation and cultural norms. They concluded that it was important to consider the effects of personal experience and socialisation, as well as age, when considering children's understanding of health and illness, including their understanding of psychological concepts.

Another study which also considered both Piagetian and alternative theories in relation to psychological states was conducted by Charman & Chandiramani (1995). Charman and Chandiramani explored children's (aged 5, 7, and 9) understanding of both chicken pox and depression, using a child-friendly interview approach, with 64 children in London. They developed an interview schedule, based on one employed in research exploring health and physical illness (Bird & Podmore, 1990). Results showed that older children had more life experience and maturity and gave multi-faceted answers, but children of all ages were able to provide appropriate responses and had a basic knowledge of both chicken pox and depression. For example, young children (5-years old) were able to state that depressed people may have a sad face and may cry (objective signs). Older children were also able to provide objective symptoms of depression, including feeling tired and loss of appetite, as well as non-observable symptoms, such as loss of confidence and taking to bed. Although all children were able to provide suggestions for possible causes of depression (in addition to

personal difficulties such as unemployment), older children also reported this in terms of the wider world, such as war. In terms of prevention of depression, all children tended to mention practical ideas such as giving presents and playing, but only older children mentioned social support. This research demonstrates that young children may have the cognitive competence to explain abstract concepts such as depression.

Further evidence of children's understanding of mental illness has been provided by Wahl (2002). In a review of the literature surrounding children's views of mental illness from 6- to 18-years of age, Wahl found that younger children tended to confuse physical and mental illnesses and had more difficulty describing mental illnesses than older children who had a broader understanding of cause and treatment. These findings have been supported by recent studies exploring UK children's (aged 5 to 11) understanding of mental illness (Fox, Buchanan-Barrow, & Barrett, 2007; 2010). Fox and colleagues investigated children's understanding of physical and mental illness in terms of causes, consequences, timeline, and curability (the key components of Howard Leventhal's Self-Regulatory Model). Fox used semi-structured interviews and a card selection task and found that the youngest children provided coherent explanations of both physical (chicken pox, broken arm, common cold and asthma) and mental (depression, anorexia nervosa, dementia) illness even at 6-years of age. Younger children provided similar responses to both physical and mental illness questions, which often reflected contagion (e.g., *"She caught it from someone"*). Whereas older children provided different responses for the differing conditions (e.g., *"It's to do with how she thinks and feels"* as a cause for anorexia, and *"Something is wrong with her brain"* for dementia). As children increased in age, their factual accuracy of responses increased. Fox and colleagues found that by the age of 11, children were able to distinguish between mental and physical illnesses, although the authors did not specify at what age this learning occurs. Fox also commented that there is a developmental shift in children's understanding of mental illness that does not fit in with Piagetian theory, in that children's responses were not vague, magical or illogical but rather based upon their understanding of physical illness. The authors reflect that the research may fit more readily into a naïve theoretical framework.

There is very little additional research looking at psychological states within a naïve framework. Kalish (1997) conducted a series of studies to explore how

preschool children (aged 2-5) distinguished between mental (sadness and perception of 'yuckiness' [disgust]) and bodily reactions to contamination. He found that young children have some understanding of the mind-body distinction. For example, he found that children perceived emotions as voluntary, but illness as uncontrollable. He also identified that knowledge influenced mental reactions to contamination, but only touching the contamination led to physical bodily reactions. That is, children generally understood that contagious illness is a physical process, but did not understand the internal bodily reactions to contamination and thought that people would get sick immediately after touching contaminated products. Kalish concluded that his findings showed no evidence of an understanding of biology, as children did not understand the bodily processes that lead to illness. However, he admits that preschool children have similar kinds of knowledge about a range of biological factors, which could arguably be linked to an understanding of biology.

In summary, from the research that has been conducted on children's understanding of psychological states, there appears to be a developmental trend which mirrors the earlier research discussed on physical illness and health. However, there has been a paucity of research exploring psychological states and this has mainly focused on specific illness terms (e.g., depression).

3.6 Children's Understanding of Emotions

Another related, albeit distinct, body of research has explored children's understanding of emotions. Emotions are '*psychological states mediated by mental processes*' (Kalish, 1997, p.79). Children's understanding of emotions has been widely studied (Dunn & Hughes, 1998) and there is a much larger body of research than children's understanding of psychological illnesses. On the whole, research has identified that in Western cultures, children begin to be able to explain emotions between 3- and 5-years of age (Vinden, 1999). Although some research has demonstrated that 2-year old children do respond, above chance levels, for expressions of fear, happiness and sadness, children's understanding only reaches similar levels to adults understanding of basic emotions at approximately 4- to 5-years of age (Vieillard & Guidetti, 2009). It appears that children learn emotions progressively, beginning with happy, then angry, and then sad. Emotions such as disgust do not develop until around the 5-years of age (Widen & Russell, 2003). Vieillard & Guidetti found that children (aged 6-8) and adult participants broadly interpreted facial expressions, showing

a range of emotions (happiness, pleasure, anger, irritation and neutrality), in the same way, although younger children had difficulty labelling irritation.

In a study looking at young children's understanding of emotions within close relationships, it was found that 4-year old children were able to explain their own emotions (happy, sad, angry and scared), as well as some of the emotions of their friends and mothers (Dunn & Hughes, 1998). Children usually knew what made their mothers happy or angry, but had difficulty stating what made their mothers sad or scared. In contrast, children were able to state what made their friends happy, sad, and scared, but were unable to state what made their friends angry. The authors found that many children in this study were able to coherently state what their mothers/friends were feeling, which demonstrated that children's understanding of emotions were related to their observations and experiences with other people.

In addition to experiences with other people being important, research has shown that cultural differences may be integral in how children interpret others' emotions (e.g., Vinden, 1999). Vinden (p.43) stated:

"For the Samoans, emotions seem to arise from relationships, and Samoans in fact generally do not describe emotions much at all (Gerber, 1985). Shweder (1994) notes that many cultures explain emotions as being caused by sickness, suffering, or the casting of magical spells. If a group of people believe that emotions are caused by outside forces whether they be other events or other people then attributing emotions to internal beliefs may not be something we should expect to see them doing. Perhaps in some cultures one simply does not conceive of people as feeling private emotions".

This is important as it highlights that it is not only developmental stage and age that influences children's understanding, but that the cultural context in which children live must also be considered. As was noted at the beginning of this chapter, conceptions of health have changed throughout history and may differ within and across cultures (Lynch & Medin, 2006). There are also a number of other factors which research has highlighted may influence children's understanding, these are discussed in the next and final section of this chapter.

Section 4

Additional Factors which may Influence Children's Understanding

As well as culture, the main other factors which have been considered within children's understanding of health and illness and related concepts are gender, experience, and socioeconomic status (SES).

3.7 Gender

Gender differences in children's understanding have been noted in some studies. Although the authors do acknowledge that their sample size was too small to generalise gender differences, Brown & Dunn (1996) investigated children's emotional understanding and found 6-year old girls were better at explaining and detecting emotions from storytelling interviews than boys and that sibling interaction and emotional understanding were correlated for girls, but not for boys. In contrast, no gender differences have been identified in research investigating children's understanding of physical and mental illnesses (Fox et al., 2010), general perceptions of health (Normandeau et al., 1998) or chicken pox and depression (Charman & Chandiramani, 1995). The role of gender in children's understanding therefore is not clear cut, although it does appear that few gender differences are reported in most studies.

3.8 Experience

Experience has also been highlighted as an important determinant in children's understanding. Yoos (1994) describes what she calls 'domain specific experience' referring to the child's personal experience of an illness. She proposed that having an illness helps with the development of problem-solving skills. In terms of Piagetian theory, affective variables have an effect on the salience of various experiences, which may increase one's understanding (Piaget, 1981). Thus, it may be expected that children with experience of illness may have greater understanding than their healthy counterparts.

Very early research identified that healthy children did perceive illness differently to children who had been hospitalised in the 1950s and 1960s (Brodie, 1974). However, since then, research has produced mixed findings. Some research comparing children's understanding of concepts of illness has found that chronically ill children were less knowledgeable about illness than their healthy peers (Eiser, Town, & Tripp, 1988; Kato, Lyon, & Rasco, 1998). Other studies

have found no differences between healthy children and children with experience of illness (Susman, Dorn, & Fletcher, 1987; Sherman et al., 1985; Young, McMurray, Rothery, & Emery, 1987). Whereas other studies have found that children with experience of illness, have more understanding than healthy children (Paterson, Moss-Morris, & Butler, 1999; Perrin & Gerrity, 1984; Redpath & Rogers, 1984).

It has been proposed that the aforementioned differences are perhaps due to the diversity of methodological approaches employed, or variation in the way 'illness' has been defined and measured (Crisp et al., 1996), as well as other methodological factors such as small sample sizes (Paterson et al., 1999). Furthermore, Burbach & Peterson (1986) note that some studies have additional methodological weaknesses which may influence the findings, such as not ensuring that raters are unaware of the child's age and level of experience. However, overall, the body of research does highlight that it is important to consider experience as a factor which may influence children's understanding.

3.9 Socioeconomic Status (SES)

In addition to gender and experience, SES has been shown to influence children's understanding of health and illness. For example, in a Chinese study, Zhu and colleagues (2009) compared children from urban and rural socioeconomic backgrounds. Urban parents had higher education and worked at the university, rural parents generally had a lower level of education, and were farmer or peddlers. The authors suggest that these are two different SES levels and categorise the urban families as having high SES and the rural families low SES. Zhu and colleagues found that children's explanations of illness differed; children from higher SES backgrounds provided more complex 'adult-like' responses than children from lower SES backgrounds. The authors argued that children acquire their naïve knowledge not only from experience and observation, but also from direct shared knowledge from significant others. That is, they state that educated parents teach children about biology and germs, but less educated parents are unlikely to be able to do this due to their own lack of knowledge. Others have also identified that parental education level stimulates the development of children's understanding of illness (Lau, Bernard, & Hartman, 1989).

3.10 Overview of Chapter

In summary, research has shown that there are developmental differences in children's perceptions of health, illness, and related concepts. There has been a large body of work exploring physical illnesses and a smaller body exploring mental illnesses or psychological states. A related, albeit distinct area of work relates to children's understanding of emotions. Taken as a whole, this body of research has been conducted within various theoretical frameworks. Much of the early research was conducted from a Piagetian perspective, more recently there has been a focus on the naïve theory. Some researchers have found that results fit in to both theoretical explanations. It has also been noted that culture, gender, experience, and SES may influence children's understanding. However, it is difficult to come to any overall conclusions about the impact of these factors, as studies have used different methods and definitions and some have methodological weaknesses. A number of methodological and ethical issues need to be considered when conducting research with children; this is the subject of the next and final introductory chapter.



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4. RESEARCH WITH CHILDREN

4.1 Background

Generally, a child is defined according to his/her age, although the upper age of childhood varies. Article 1 of the United Nations 'Convention on the Rights of the Child' (UNCRC) specifies that children are defined as '*all those under 18-years of age*' (UNICEF, 1989). The programme of research presented in this thesis (subsequently called the present research) focuses on children under the age of 12-years; an adult is defined as being over 17-years of age, in line with the UNCRC.

It was following the UK Government's ratification of the UNCRC (UNICEF, 1989) and the publication of 'The Children's Act' (HMSO, 2004) that there was an increasing awareness of children's rights. There was a call for children to be listened to and their opinions to be canvassed, particularly concerning issues that directly affected their lives (Morrow & Richards, 1996). This was reflected in policy documents such as the 'UK Children's National Service Framework' (Department of Health, 2003), which specified that professionals should listen to children and value and consider their opinions about services which affect them. Similar notions are reported in more recent documents by the current Government, such as, 'Getting it right for children and young people' and 'Achieving equity and excellence for children' (DoH, 2010).

These developments in the rights of children have led to changes in research, which moved from generally being conducted '*on*' or '*about*' children, to being '*with*' children. That is, early research tended to consider adults' perceptions about children's behaviour, actions or needs and children were observed, measured and judged (Mayall, 2000). Children were treated as subjects or objects, rather than as participants (Woodhead & Faulkner, 2000) and were often excluded from research and their opinions unheard (James & Prout, 1997). This was, at least in part, due to children's perceived inability to provide reliable information about their lives; this has since been questioned (Mayall). Although it should be noted that there are exceptions to this and some early work *with* children was conducted (e.g., Rashkis, 1965), although this was the exception rather than the rule. It has now been acknowledged that contemporary research with children should actively involve the child and should be child-centred.

Child-centred research implies that children are competent at expressing their own experiences and allows children's views to be heard and taken seriously (Mayall, 1996).

The present research was child-centred. The researcher entered into the project from a critical realism stance. That is, children who were able to verbalise their thoughts were deemed capable of presenting their own experiences, views, and feelings, when asked in an age-appropriate way and children's views and feelings were accepted as valid evidence. The position was taken that children are more vulnerable than adults and may have different social competence, but their vulnerability does not make them less or greater than adults.

Because of the vulnerability of children, a number of factors need to be addressed prior to conducting research, including gaining access to children in various settings and the power imbalance between the adult researcher and the child participant. These issues are considered in the next section.

4.2 Gaining Access to Children and Working in Various Settings

Gaining access to child populations is often through a so-called 'gatekeeper'. That is, the person who is responsible for the child in a particular context. This may be parents, teachers, headteachers, local education authority professionals, youth club leaders and so on. Research with healthy children is typically conducted in 'natural' environments, places children are familiar and comfortable with (e.g., schools, youth clubs, at home), rather than clinical settings (e.g., university, laboratory, clinic, hospital) which may in themselves induce stress. These familiar settings are deemed more conducive to the research process (Marshman & Hall, 2008). As the main body of the present research was conducted in a school environment, considerations about working in this specific setting will be discussed in more detail.

There are advantages to collecting data in schools. For example, children are familiar with the question and answer format and so interviews with a researcher are within children's normal experiences. However, there are also problems with conducting research, as accessing and recruiting children can be challenging (Rice, Bunker, Kang, Howell, Carol, & Weaver, 2007). In the present research, there was a very low participation rate, over 120 schools were contacted, and only eight agreed to take part in the research (approximately 7%).

It was not clear why such a high number of schools did not wish to take part in the research. From those schools that did respond, headteachers feedback fell into three areas. In some schools, the headteacher did not believe that children experienced stress and/or did not want them to be introduced to it through the research project. In contrast to this, other school headteachers were concerned as they stated that they had a number of 'highly stressed children', where child protection was an issue, and did not want to cause any additional stress for these children. The majority of teachers, however, responded that the school simply did not have time to take part in the research.

Problems with working in schools do not end once schools have been recruited. Once access to schools has been gained, further difficulties may arise, for example, obtaining a space to conduct the research in. Some settings lack space outside the classroom in which research can be conducted (Mauthner, 1997). In the present research, the researcher attempted to fit in with whatever each school could provide; some interviews were conducted in classrooms or corridors, others in the school library, staff-room, or in another unused classroom (e.g., music room). In all these different places, noise levels varied quite considerably, both within classes and across schools.

There were advantages and disadvantages to conducting research in and out of the classroom setting. Where schools had provided a separate room, there were often frequent interruptions from other staff wanting to use the room. Younger children who stayed in the classroom were visually less nervous than those who were interviewed one-to-one in a separate room; this was particularly evident when research was conducted in the staff-room, a room in which children are not usually allowed. When interviews were conducted in classrooms or corridors, lack of privacy may have been an issue, as other children may have been able to over-hear the interview, perhaps making children more aware of what they were saying. It was evident that some children were also aware of what other children were saying. This is illustrated in the extract below, taken from a male child in the preliminary interview study (Chapter 7):

Interviewer: Do you know anybody else who has been stressed?

Child: No, not really... I know when you asked Larry² that question he said my name. He said I'd been stressed (Martin, male, age 8).

² All children's names are replaced with pseudonyms throughout the thesis.

This is a drawback of conducting research in a school setting. Conducting research within the home environment may have overcome this difficulty, but would be more costly in terms of time and money. In order to minimise the likelihood that children felt that they should give responses in line with peers, efforts were made to ensure that children knew that information would be confidential, that the researcher would not disclose what friend's had said and that they could respond 'don't know' or not answer any question that they did not wish to.

A further challenge in school-based research is that the teaching staff may stipulate conditions on the research. Some schools may have concerns about researchers being left alone with a child due to personal protection issues (Mauthner, 1997) and stipulate that research must be conducted with a staff member present. Attempts were made to overcome concerns about the researcher being one-to-one with a child in the present research, by ensuring that the researcher had a Criminal Records Bureau (CRB) Enhanced Disclosures form and that all schools had access to this. When working alone with a child, the researcher was able to use her experience of working with children to resolve any child behavioural problems which arose and knew where to seek support if necessary.

Another stipulation by some schools was that all adults had to be called 'Miss' or 'Sir' or by their surname (e.g., 'Miss Valentine'). This may not occur in a youth club or home setting where the researcher has more opportunity to define him/herself and the research topic. Issues such as this can add another dimension to the research and may add to the power differential between the adult researcher and child participant.

4.3 Power

Morrow & Richards (1996, p.98) comment that "*The biggest ethical challenge for researchers working with children is the disparities in power and status between adults and children*". For this reason, power has been discussed widely in the literature (e.g., Christensen, 2004; Christensen & James, 2000; Ireland & Holloway, 1996). Power can be considered in terms of age, size, gender, ethnicity, social position, and so on. In research with children, the adult researcher is generally older, bigger, and in a higher social position than the child, who may also differ from the researcher in terms of gender and ethnicity. This leads to an inevitable difference in power between the adult researcher and

the child, and what Ireland & Holloway (1996) term an asymmetrical relationship.

The power relationship between the child and adult can be minimised, at least to some extent, by reflexivity, responsiveness and open-ended research goals and methods (Mauthner, 1997). The power imbalance can also be lessened by the researcher using language that children understand, as well as ensuring that the researcher remains aware of children's cognitive and emotional developmental capabilities, such as a limited attention span (Ireland & Holloway, 1996). Focus groups have been noted as being one way of addressing the power balance (Hill, 1997). In focus groups, several children are given the opportunity to meet together with one researcher; therefore children have a power in their numbers. Hood, Kelley, & Mayall (1996) found that children were more likely to talk freely in pair or group interviews outside the home, than in single interviews at home.

In the present research, the differences between the researcher and child were acknowledged. The researcher is a White British female, aged in her early 30s; the children were aged between 4- and 11-years and were from a variety of ethnic backgrounds. The researcher initially talked to the children in a class group. This was deemed most appropriate, as it is a quick way in which to disseminate information to all children and is a format that children are used to with teachers, but it was acknowledged that this potentially adds to the power difference with the researcher taking on a teacher-like role.

Therefore, the researcher made efforts to redress the power imbalance and allow the child to have power during data collection. An attempt was also made to develop a rapport with each child prior to the data collection, by engaging them in conversation, respecting children's answers and listening to their opinions. Children were given the choice of where to sit and when they stopped the interview. Children were given control of the audio-recorder and had an opportunity to play with this before data collection. Some children used the recorder like a microphone would be held on television interviews, others left it on the table. Some children stopped the recorder when others walked past to ensure privacy. Thus children's control of the interview was respected.

Children were also respected in their right to ask questions. As well as providing children with an opportunity to clarify their understanding, this was also a good opportunity to redress the power differential, with some children taking the

opportunity to interview the researcher. This is illustrated in the extract below, taken from a female child interview (Chapter 11):

Interviewer: Have you any questions that you would like to ask me?

Child: Have you been stressed?

Have you – do you think can stop stress – er – do this [points to Likert scale]

Has anyone in your family been stressed?

Have you heard anyone say that they are stressed?

Has your brother been stressed?

When you was a little kid were you stressed with doing homework?

Have you been stressed when when you have been in class?"

(Una, female, age 6).

Children asking questions in this way shows them exerting power, suggesting equality and commonality (Christensen, 2004). In response to questions asked by children in the present research, the researcher answered questions honestly, in an age-appropriate manner. In some cases, where questions were personal, for example, asking the researcher's age, the researcher talked about herself. Where questions related to stress, for example, how to cope with stress, the researcher answered questions in the context of what other children had said, using the language other children had used. For example,

Child: What can you do to stop stress?

Interviewer: It is hard to stop stress as it often happens in our daily life.

Things like falling out with friends or having to do things that you don't want to do might make some children feel stressed, and we can't always stop these. But when people feel stressed they can do things to reduce it or manage it. Some children at other schools have told me that they like to talk to other people when they are stressed, some do something else like play with toys or watch TV, others maybe go outside and have some fresh-air or get a drink of water. When it's a big stress like being bullied it is better to talk to a grown-up about it so that they can help you, but if it's a smaller stress like falling out friend you might be able to sort it out yourself by talking to your friend. Does that help?

Using children's own examples of stress-management was a further attempt to reduce the power differential and to ensure that age-appropriate language was used. In these responses, it was made explicit that children in the examples were from different schools to highlight that the child/children that the researcher was talking about was not necessarily in the same school as the child being interviewed. This highlights one of the ethical issues (anonymity) considered in the present research. Further ethical considerations will now be discussed.

4.4 Ethical Considerations

Ethical considerations are important in all psychological research as Thomas & Kane (1998 p.336) state "*Ethically sound techniques can add to the value of research*". This is perhaps more so when working with children, who, as stated earlier, are a potentially vulnerable population. Ethics were a particularly important issue in the present research, not only because it involved children, but also because it involved a potentially sensitive topic (stress).

Ethical guidelines were used as a framework to guide the ethical considerations in the thesis. The main professional organisation governing psychology within the UK is The British Psychological Association (BPS). The BPS documents: 'Generic Professional Practice Guidelines', 'Ethical Principles for Conducting Research with Human Participants', and 'Code of Ethics and Conduct' (BPS, 2009) provided guidance for the researcher. As the research was conducted from a University base (initially The University of Derby and then The University of Nottingham), the ethical procedures of the University were also considered. This involved obtaining ethical approval for the first two preliminary studies from the University of Derby Psychology Ethics Committee and for the remaining studies from the University of Nottingham Institute of Work, Health, and Organisations Ethics Committee. In addition, as making ethical considerations was an ongoing part of the research process (Morrow & Richards, 1996), supervision was used to assess risk and inform research practice when ethical dilemmas arose. Issues which were selected from the guidelines, presented to the ethics committees, and discussed in supervision and are outlined below.

4.4.1 Consent/Assent

Informed consent involves the researcher providing participants with sufficient information about the research to enable them to decide if they wish to take part, without any coercion. The participant then enters into a contract with the

researcher. Because children are classed as legally incapable of entering into a contract, assent must be obtained from children (Hurley & Underwood, 2002). Assent is an agreement to take part in research, from any participant who is not able to provide informed/free consent (ESRC, 2010). Assent is more than not objecting to taking part and is a similar concept to volunteering, having been provided with a full explanation of the nature of the research. It has been shown that assent can be obtained from children aged 7 and above (Broome, 1999), although the specific age is debated. Hurley & Underwood (2002) explored 8-, 10- and 12-year old children's understanding of research rights, before and after debriefing and found that although all children provided assent and did not withdraw from the study, the youngest group of children showed less understanding of the research aims and issues such as confidentiality. Very young children may not understand the concept of volunteering and may feel obliged to comply with adults in authority (Ireland & Holloway, 1996); therefore there is greater need to ensure that young children wish to participate in research. The BPS guidelines on 'Ethical Principles for Conducting Research with Human Participants' state that, "Where research involves any persons under 16-years of age, consent should be obtained from parents or from those in *loco parentis*" (BPS, n d, p.3).

Throughout the present research, clear information was provided to youth club leaders and school teachers acting in '*loco parentis*'. It was these individuals, who acted as gatekeepers, from whom informed consent was initially sought. Full information about the project was provided to the gatekeeper initially in written form. This included detailed information about the nature of the project, storage of data and the protection of personal information (in line with the Data Protection Act, 1998). Gatekeepers were given time to digest the written information and a follow-up phone call or email was sent to the school to discuss the research. Only one phone call/email was made/sent to each setting, to not overly coerce gatekeepers to take part.

Once gatekeepers agreed to take part, a face-to-face or phone meeting with the gatekeeper enabled him/her to ask the researcher any questions and gave the researcher opportunity to provide further details about the project. The gatekeeper then provided signed consent for the research to take place in the setting. The gatekeeper was asked to decide on the level of consent required in their setting (parental or *loco parentis*). If the gatekeeper opted for parental consent, they were given the further option for parents to opt-in or opt-out of

the research. Both of these options involved sending a letter home to parents via the child. The opt-in letter required parents to sign a response slip stating whether they did or did not allow their child to take part in the research, non-response was assumed as non-consent. The opt-out letter required parents to sign a response slip only if they did not allow their child to take part in the research, non-response was assumed as consent.

Once consent had been obtained from gatekeepers, children's assent was sought. As some children were very young, below the age in which they have been shown capable of providing assent (Broome, 1999), care was taken to ensure that children did freely volunteer. In line with BPS ethical guidelines, participants were informed fully about the purpose, methods and possible applications of the research, what their participation in the research may involve and what risks were involved (in terms of disclosing issues of concern). The research was presented to children in a child-friendly age-appropriate way. Further details about how the present research was presented to children, is provided below.

In a classroom/youth club setting, all children were asked whether they had heard of a University. Children were given an opportunity to talk freely about their knowledge, for example, if their parents or siblings went to University. A University was then explained to children, as 'a place where adults go to learn, a bit like schools for grown ups'. It was further explained to children that one of the ways in which we learn information is by asking people questions and that was what the researcher had come to do. Children were told that the researcher wanted to ask children questions to find out what children think about things, in particular what they think about stress, whether they have experienced stress, and what children do when they are stressed. The emphasis was placed on finding out information from children and children being the experts in their own knowledge. As in previous studies (e.g., Mayall, 2000), the researcher was presented as a person who, as an adult, does not have children's knowledge and therefore needed to ask children questions. It was noted that children may help others by taking part in the research: 'taking part in this project will help my research at University and later on may help other children who experience stress'. The aim of this was to ensure that the research made sense to the children.

Children were given an opportunity to ask the researcher questions, before deciding whether they wanted to take part. Children were also given the option of alternative tasks, such as drawing, carrying on with schoolwork or reading a book. These options were also given to children whose parents had not provided consent, so that they did not feel left out. Children were reassured that if they decided not to take part, there would be no adverse consequences, that is, it would not affect anything to do with their youth club or schoolwork. Children's assent was assumed if they volunteered to take part, but this was reviewed throughout the contact time with the child. It was acknowledged that children may have different ways of expressing consent (or dissent) from taking part in the research (BPS, n.d.). The researcher was aware to look out for any signs which suggested that the participant was not willing to take part or wished to stop taking part in the research. The researcher used her discretion, and experience in working with children, to establish that the child was fully aware of what the research involved and whether or not he/she wanted to engage in the research.

4.4.2 Confidentiality

As one researcher has stated, *"Confidentiality has a resonance among children whose relationships and friendships are often performed through the engagement with telling and keeping secrets, revealing secrets to other children or 'telling' adults"* (Christensen, 2004, p.171). In accordance with the BPS requirements and the Data Protection Act, throughout the project and in any publications, anonymity and confidentiality of participants were assured. To ensure this, the identity of both individual children and settings were not recorded in any details held electronically. Individual children were given pseudonyms prior to the transcription process. For this reason, all names of participants presented throughout this thesis have been changed. Original (raw) data, containing children's names, was held securely by the researcher in lockable storage.

During the research process, children were told about confidentiality and anonymity in an age-appropriate way. Children were told that their names would not be noted on any documents. Children were asked for consent to audio-record the interview and were told that the recording would only be listened to by the researcher. Each child was informed that everything that he/she said would be written down, but that this document would not include the child's name or the name of his/her school. This was important for gatekeepers

to assure them that personal information would not be misused. However, it was always made clear to each child that there were limits to confidentiality and that confidentiality would be breached if he/she disclosed any issues of concern. For example, if the child informed the researcher that they were getting hurt in any way. In later studies, further information was provided to older participants (aged 7+) that confidentiality would be breached if they disclosed that they were getting hurt in any way including being hurt by other people or themselves. This was because issues of self harm (injuring oneself with a compass and hair pulling) were raised by some children. These issues of concern are further discussed in the following child protection section.

4.4.3 Child Protection

Child protection was another key feature in the present research. The BPS (2009) provides clear guidance that participants should be protected from physical and mental harm during research. The ESRC define this in terms of risk: *"Risk is often defined by reference to the potential physical or psychological harm, discomfort or stress to human participants that a research project might generate"* (ESRC, 2010, p.26). Whilst there was no obvious risk of such harm in the present research, it was acknowledged that some children may be sensitive about stress. The researcher was mindful of this. Children were informed that there were no right or wrong answers to the questions and that they were not obliged to answer anything that they felt uncomfortable with. In the case that a child was uncomfortable when discussing an issue, a previously agreed protocol was followed. This involved stopping the interview and taking appropriate action, reassuring the child and referring the child to the agreed individual within the setting.

A similar procedure was followed if a child disclosed anything that concerned the researcher (e.g., bullying, neglect, abuse). At each setting, a protocol was set in place whereby the researcher would inform an appropriate person about child disclosures that were of concern. When children did disclose sensitive issues, the researcher assessed and dealt with each disclosure on a case-by-case basis, as and when it arose. The researcher informed the child that confidentiality would be broken, the child was told who would be informed and when. The child's name and his/her disclosure was noted on paper and the researcher presented this information verbally to the appropriate person at the school (in line with the agreed procedure at each setting) to safeguard the child. Each

school then followed their own guidelines regarding issues of concern. Issues were not disclosed to anyone else (e.g., parents) by the researcher.

In accordance with ethical guidelines specific to projects concerning children and educational contexts, specific findings were not shared with children, parents, or teachers and it was recognised that a researcher's words may carry unintended weight. Any individuals involved with the project were given the opportunity to obtain a summary of the data at the end of the project, but were not able to receive the data from a particular school, in order to ensure child safety and anonymity. It was acknowledged that the way in which schools were described within these reports may enable readers to identify children, therefore a collective overview of the school populations were noted from school Office for Standards in Education, Children's Services and Skills (Ofsted³) reports. These were also used to gain sensitive details about participants (see below).

4.4.4 Sensitive Information

Obtaining demographic information from young children was not deemed appropriate, as many children do not know their dates of birth and may not have a full awareness of their ethnicity and asking them such questions may put undue pressure on them. Therefore, efforts were made to obtain this information from gatekeepers, but if gatekeepers were not willing to provide these details, they were not pressurised in any way. It was noted that, under the Data Protection Act (1998), racial or ethnic origin of an individual is classed as sensitive personal data and should not be shared without consent.

In the present research, some gatekeepers were willing to divulge this information about each child, with assurance from the researcher that the information would be held in a confidential manner. Other gatekeepers were not willing to divulge this information. Therefore, when research was conducted in schools, a broad overview of the school population was reported from school Ofsted reports.

4.4.5 Withdrawal

Another ethical consideration is withdrawal; this includes the right to withdraw retrospectively. In the present research, the right to withdraw from the study was made clear to gatekeepers in the initial information, during the verbal

³ Ofsted is a non-ministerial government department which is the official body for inspecting schools in England.

discussion about the project, and in the signed consent form. Gatekeepers were informed that personal data would be held for a period of 8-weeks after the collection of data, after this time it was made clear that data would be held anonymously and retrospective withdrawal would not be possible. Gatekeepers were told that during the initial 8-week period they could withdraw either as a whole, or on an individual basis, by contacting the primary researcher. No gatekeepers or individuals withdrew retrospectively from the study.

Children were told that they could 'stop taking part' in the study at any time by either telling the researcher or by stopping the recording equipment. Children were told about this at two time points, firstly in a group setting when asking for volunteers and, secondly, immediately prior to data collection. If any child did not seem to be engaging in the research, they were asked if they wanted to carry on or go back to what they were doing before. Further details about the number of children who withdrew from each study are provided in the relevant chapters.

4.4.6 Deception

The penultimate ethical issue considered is deception. Deception was not an ethical issue in the present research, as all concerned were aware of the nature of the study from the outset. The only time where deception may be an issue is that children were told that the study would involve 'answering questions about the word stress for which there were no right or wrong answers'. From a research perspective, there were in fact 'right' and 'wrong' answers but children were not informed about this and all answers given were positively reinforced, for example, with phrases such as 'you're doing really well'. Although this may be considered 'deceptive' it was thought to be appropriate for the nature of the research and not detrimental to the children involved.

4.4.7 Debriefing

Finally, the last part of data collection involved debriefing. Children were told again about the nature of the project and given an opportunity to ask any further questions. All children were given stickers to thank them for taking part in the study. Gatekeepers were given a book token to thank them for taking part.

4.5 Overview of Chapter

This chapter has provided an overview of some of the main methodological and ethical issues related to research with children that were relevant to the present research. In particular, issues relating to gaining access to children through other people, the power imbalance between adult researchers and child participants, and an overview of ethical considerations including consent, confidentiality, child protection, withdrawal, and deception were all considered in the context of the present research. The chapter concludes by noting that, when conducting research with children, the researcher has to be aware of these methodological and ethical issues throughout each stage of the research process. This is particularly important in the planning of child-friendly methods that attempt to minimise the power imbalance and consider ethical factors that arise from each method. These planning and design questions, along with deciding the most appropriate method to use in the present research, are the topic of the next section of this thesis.

PART TWO:
PRELIMINARY RESEARCH STUDIES

5. INTRODUCTION TO PRELIMINARY RESEARCH STUDIES

5.1 Methods Used with Children

Chapter 4, highlighted that contemporary research should be *with* children, should consider methodological and ethical issues and be child-centred. But what makes a data collection technique or particular methodology child-centred, is not clear. Although there are numerous books on conducting research with children (e.g., Alderson & Morrow, 2011; Christensen & James, 2008; Greig, Taylor, & MacKay, 2007; Kellet, 2010; Tisdall, Davis, & Gallagher, 2008) and there are many papers that consider different methods used with children (e.g., Mauthner, 1997), there is, to date, no consensus as to the most appropriate method to use with children.

Some researchers (e.g., Christensen, 2004, Christensen & James, 2000) advocate that research with children does not necessarily need to be methodologically different to research with adults. Rather, these authors state that, when designing research, research questions need to take into account the social and cultural context of the study and participants (Solberg, 1996). That is, when setting the research question, researchers should consider factors including demographics of the child such as age, gender, and ethnicity as well as the setting in which research is conducted.

Other researchers (e.g., Darbyshire, Macdougall, & Schiller, 2005; Marshman & Hall, 2008) propose that different methods are only appropriate for children of a certain age. Proxy measures, whereby parents or teachers provide answers on behalf of children, have often been used for children under 8-years of age (Dockett and Perry, 2003 cited in Darbyshire et al., 2005). The age at which children are deemed capable participants, in their own right, varies. Scott (2000) specified that only children aged seven and above are able to respond both in semi-structured and group interviews. Conversely, Marshman & Hall (2008) stated that suitable methods for children in this age group include interviews, questionnaires, and participatory techniques such as time-lines, drawings and vignettes and cite that even children as young as 3-years of age are able to take part in some of these activities.

There is further debate as to whether existing methods can be adapted for children (e.g., through making language simpler and more child friendly) or whether the underlying principles need to be changed (Darbyshire et al., 2005). In addition, some researchers highlight that children may: make things up to please the interviewer (social desirability response); have difficulty separating truth from fiction (may talk about something they have seen on TV as being true); not have enough experience and/or knowledge to articulate their thoughts; and/or may simply repeat information they have heard adults say (Mayall, 1994). This may lead us to question whether we can 'really believe' children's accounts (Morrow, 1999). Although other researchers note that the risk of social desirability and acquiescence is no different between children and adults (Marshman & Hall, 2008), it is important that the method used in the research allows children to demonstrate their knowledge fully.

From the research discussed in earlier chapters (Chapter 2 and 3), it is clear that there have been a number of different methodologies used with children when specifically exploring concepts of health and illness and when researching stress in children and young people. Although some researchers have used novel approaches, such as asking children to draw pictures of germs (Banks, 1990) or using an ethnographic interview (Bhana & Epstein, 2007), on the whole, research exploring children's perceptions of health and illness has used interview methods (e.g., Charman & Chandiramani, 1995), forced choice methods (e.g., Smith & Williams, 2004), or focus groups (e.g., Porcellato, Dughill, & Springett, 2002). It is worth considering these main methods in more detail.

5.1.1 Focus groups

Focus groups are *ad hoc* groups, created for the purpose of answering the research question(s) (Hyden & Bulow, 2003). In a focus group, participants come together to talk, in an informal group discussion, about a topic, generally defined by the researcher (moderator). The moderator poses questions to the group rather than to each individual. The moderator also encourages participants to interact with each other rather than with the researcher (Wilkinson, Joffe, & Yardley, 2004). Participants' discussion and interaction is recorded and the resulting data is qualitative (Wilkinson, 1998). As such, focus groups are a useful tool in data collection to consider what individuals understand, as well as to explore differences between group members. Focus groups have been frequently used in research with children and are useful in exploratory research seeking to identify children's understanding and

perceptions (for a review see Heary & Hennessy, 2002). They are also useful because they replicate small group conversations that children have regularly in the classroom and out-of-school clubs (Mauthner, 1997). In recent years there has been much guidance produced about how to conduct focus groups with children (see Barter & Renold, 2000; Hill, Laybourn, & Borland, 1996; Horowitz et al., 2003; Kitzinger, 1994; Morgan, 1996; Morgan, Gibbs, Maxwell, & Britten, 2002; Porcellato, Dughill, & Springett, 2002; Vaughn, Shay Schumn, & Sinagub, 1996). However, there is a paucity particularly focusing on the methodology with very young children.

From the guidance and recommendations that have been set out, it has been suggested that similar age groups of children should be used to avoid domination by older children; boys and girls should be interviewed apart (due to differing communication styles) and groups should consist of fewer than eight children (Scott, 2000). However, the optimum size for a focus group is debated within the literature (Hyden & Bulow, 2003). Some researchers have stated that a small sample size of three children is most appropriate (Mauthner, 1997), other researchers have advocated that groups should contain six children (e.g., Porcellato et al., 2002; Vaughn et al., 1996).

5.1.2 Interviews

Like focus groups, researchers use interviews to seek information directly from participants. There are many types of interviews, which differ in terms of the structure of questions and detail of the answers. In structured interviews, the researcher reads a set of questions to participants, who respond by answering from preset responses. The researcher does not deviate from the interview schedule and the participant may only give set responses. This method has been likened to a verbal questionnaire. In contrast, in open ended, unstructured, or informal interviews, participants are given a topic and talk freely about that topic. A compromise between the two extremes of interviews is the semi-structured interview (SSI). The SSI generally involves open-ended preset questions which the participant can answer in his/her own terms. In SSIs, the researcher may also be led by participant's responses and is able to follow up on points of interest within the limits of the interview schedule. Thus, SSIs are a useful method that enables the researcher to cover specific topics, but allows participants to generate and reflect upon their own ideas and items which are important to them (Greig, Taylor, & MacKay, 2007). Ideally, an interview should be not too long so that it generates a huge amount of data, but

not too short whereby spontaneous conversation is not offered and the participant requires much prompting from the researcher (Marshman & Hall, 2008).

The SSI has frequently been used within research seeking to explore children's perspectives (e.g., Almqvist, Hellnäs, Stefansson, & Granlund, 2006; Koopman, Baars, Chaplin, & Zwinderman, 2004; Mordoch & Hall, 2008). Some researchers have successfully interviewed young children (aged 6+), and acknowledge that children as young as 3-years of age are capable of being interviewed (Docherty & Sandelowski, 1999). Others specify that young children may have linguistic difficulties in responding to questions and articulating their knowledge; this may result in an underestimation of their knowledge (Karmiloff-Smith, 1988). The forced choice method is an alternative which does not rely on linguistic skills.

5.1.3 Forced choice

Forced choice methods give participants a series of response categories from which they then select the answer which is most in line with their response. Forced choice studies reduce the linguistic elements of the research as they allow participants to respond to questions without having to verbalise responses.

Previous research has shown that children are able to demonstrate a higher level of understanding, at an earlier age, using forced choice rather than open interview methods (e.g., Williams & Binnie, 2002). This may be because forced choice questions help children to clarify the meaning of the researcher's questions and reduce any ambiguity children have about the instructions, allowing children to more accurately represent their knowledge (Panagiotaki, Nobes, & Potton, 2009). For example, Smith & Williams (2004) conducted a study to explore children's (4- to 11-years) understanding of disability. Children listened to a short vignette outlining four children with different disabilities, who were the same age as the child participant. After listening to the vignette, children were asked to think about how the child became disabled. In response to nine causal explanations read aloud by the researcher, children were asked to point to a graphical representation of thumbs in various positions representing 'unlikely', 'maybe' or 'likely'. Children were then asked whether they were 'very sure' or 'unsure' about their answers, to produce a five point (low to high agreement) response scale. All children were able to engage with the method and showed greater understanding than previous research using other methods.

This indicates that forced choice methods are useful in working with young children.

Providing children with cards to act as memory aids can also be useful in helping children to remember the response options. There is debate about the most appropriate response categories to use. Siegal & Peterson (1998) found that young children (3- to 5-year olds) performed better with forced choice questions (with the correct choice included) than with yes/no questions. Whereas, Taylor, Esbensen, & Bennett (1994) compared a yes/no question format with a forced choice answer format, and found that some of the youngest children in their study, of 4- to 5-year old children, provided more accurate responses with the yes/no answers rather than the forced choice answers. Therefore, there is no consensus as to the best way to present a forced choice study. There are advantages and disadvantages to each of these methods, as summarised in Table 5.1.

Table 5.1. Advantages and Disadvantages of Methodologies Used With Children

Method	Advantages	Disadvantages
Semi-structured interviews	<ul style="list-style-type: none">• Can be used with children of all ages• Researcher can follow up interesting points• More flexible than questionnaires• Provides more anonymity than group interviews or focus groups, possibly leading to greater disclosure• Social cues, such as voice, intonation, body language etc. can all provide additional information (but may not be recorded in transcription)	<ul style="list-style-type: none">• Interviewer may inadvertently influence responses by giving subtle clues (e.g., through his/her body language)• Children may not be able to verbally express their own knowledge• Talking to a 'strange' interviewer alone can be intimidating• Time consuming for researcher – particularly transcription
Forced choice	<ul style="list-style-type: none">• Limited verbal language skills required• Easy to administer/record• Easy to analyse and compare	<ul style="list-style-type: none">• Children may respond randomly or provide the same answer• There is a 'yes' bias, particularly for young children• Children may not understand the method• Young children may find it difficult if reading answers is involved
Focus groups	<ul style="list-style-type: none">• Can quickly and easily identify common ideas between group members• Children can share ideas and build on the knowledge of others• Some children are more confident in group situations• Reduces the power imbalance when there are several children and one adult interviewer• Interesting points can be followed up by the researcher/group moderator	<ul style="list-style-type: none">• Can be hard to determine who said what, when transcribing• Dominant members may 'take over' – group dynamics• Need an experienced researcher to moderate the group

5.2 The Present Research

In Chapter 2, stress was identified as a psychological term frequently used in Western society. It was also illustrated that, compared with the large body of work on stress in adults and older children, there is a lack of research exploring stress in young children. In particular, there is a paucity of research considering how healthy children understand and cope with stress in the context of their daily lives; how understanding changes with increasing age and experience, and how this fits into the theories of child development (as outlined in Chapter 3). It is not clear at what age children will have understanding of stress, or the extent to which they experience stress in their daily lives. As childhood stress has not been explored previously within children's understanding of health and illness (and because there is no consensus as to the most appropriate method to use with children), it was important to conduct a methodological inquiry into the most effective and appropriate method to use. The studies presented in this section of the thesis aimed to use the aforementioned methodologies to investigate children's understanding and experience of stress.

It is important to investigate whether children have an understanding of stress from both theoretical and practical perspectives. Theoretically, it is important to identify what children understand about this abstract psychological state and consider how this fits in with the existing theories of child development; this may help to inform our understanding of conceptual change. There are also implications for practice. The findings may be important for healthcare and educational professionals, particularly to help them to address policies and clinical guidelines. For example, the National Institute for Health and Clinical Excellence (NICE) guidelines on promoting children's social and emotional wellbeing in primary education, which recommend that: *"Teachers and practitioners are trained to identify and assess the early signs of anxiety, emotional distress and behavioural problems among primary schoolchildren"* (NICE, 2008, p.9). Furthermore, research may have implications in terms of health promotion. Knowing what children know and understand about stress may be used to develop age-appropriate health education resources to help children to cope with the stressors that they face. This may help health, social care and educational staff, as well as children who have experienced stress.

The importance of establishing children's understanding of stress, in order to develop age-appropriate resources to teach children to cope, has recently been highlighted by a number of suicides by young children in Northern Ireland. Philip

McTaggart (Director of a suicide prevention charity) said: *"...I think we need to bring life skills, coping skills, back into the curriculum where young people are taught these skills from primary school"* (BBC News, 2011).

One of the first steps to developing an intervention is to identify what is already known about the topic, through a thorough literature review. From the literature reviewed in Chapter 2, it is clear that there is a paucity of research exploring young children's own perceptions and experiences of stress. However, it is not clear as to the most appropriate method to conduct this research. The studies presented in this section of the thesis therefore aimed to identify the most appropriate method to obtain information from children (aged 4-11) about their understanding and experience of stress.



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6. CHILDREN'S PERCEPTIONS AND EXPERIENCE OF STRESS: A FOCUS GROUP STUDY

6.1 Abstract

Background: This focus group study aimed to establish whether questions about stress were suitable for children between 4- and 11-years of age and considered the terminology that children used when talking about stress. It also assessed whether the focus group method was effective at assessing children's understanding of stress.

Method: Eight small focus groups ($n=3$ or 4) were conducted with 31 children, separated by gender. Children were asked to discuss four aspects of stress relating to, definition, experience, learning and coping with stress.

Findings: Children struggled to identify where they learnt about stress, but the other questions were suitable for all age groups, although it would be useful to develop prompts. Female children in the youngest age group had not previously heard of stress and struggled to talk about the concept; providing a way to define stress to the youngest children may therefore be beneficial. Differences in the level of children's understanding were apparent across the age groups; children's definitions became broader and more detailed as children increased in age.

Conclusion: The study generated a comprehensive descriptive account of children's understanding and experience of stress. This provided a useful starting point to identify the language that children used to talk about stress. However, the focus group method was demanding, particularly for the youngest age group of children. Overall, it was concluded that an alternative method may better assess children's conceptualisation of stress.

6.2 Introduction

Focus groups have been frequently used in research with children, but have only occasionally been used within the area of children's understanding (see Chapter 3 for a review of the literature on children's understanding). In her PhD thesis and subsequent recent publications (e.g., Fox, Buchanan-Barrow, & Barrett, 2010), Fox describes conducting a focus group study with children aged 5- to 11-years, to establish children's understanding of various concepts relating to mental illness, including 'crazy', 'mad' and 'anorexia'. She then used the data obtained to develop materials for subsequent studies. As in Fox and colleagues' research, the present study was conducted initially to establish children's

understanding of stress and the information obtained will be used to develop materials for subsequent studies.

It was felt most appropriate to conduct the research in an out-of-school club setting as this was a place in which children were used to being, but was out of the school environment. It was deemed important to establish that the focus group was not like school work, there were no right or wrong answers and that all children could agree or disagree with each other and contribute to the discussion without raising their hands, as noted in previous focus group research (Darbyshire et al., 2005).

Prior to conducting the focus group, an informal interview schedule was developed which detailed the main areas that were to be discussed during the group. It was not intended that questions from the schedule were asked in a structured interview format, but rather that the moderator asked questions, whilst being guided by the group's responses. The content of the questions drew upon earlier work by Charman & Chandiramani (1995; discussed in Chapter 3). An evidence based judgement was made that the work of Charman & Chandiramani used an appropriate research strategy and had effective questions which tapped into children's understanding of both physical and psychological illnesses. Therefore, their interview schedule was used as a foundation for the questions in this study. Small adaptations were made to the schedule to explore the topic of stress in a focus group setting.

One of the aims of the present study was to enable children to discuss their perceptions, understanding, and experience of stress. This was in order to obtain a range of ideas from children and to provide a descriptive account of children's conceptualisations of stress in the context of their daily lives. The purpose of this was to identify terminology which participants used, to enable age-appropriate materials, using children's own words, to be developed for use in stories, vignettes, and response categories for subsequent preliminary studies.

Another aim of the focus groups was to employ them as a pilot study to test whether the selected age range and questions were appropriate. In particular, the focus group study was designed to identify whether the broad topic area of stress was suitable for children in the age range. Another consideration was whether the questions were unambiguous and tapped into the desired topic, that

is, checking that the children interpreted questions in the way the researcher intended.

The questions considered four aspects of stress relating to definition, experience, learning and coping. In terms of definition, the study aimed to explore what children understood the word stress to mean, whether they could tell when someone was stressed and what happened to an individual when they were stressed. In relation to experience, the study aimed to identify whether children had both direct (children's own stress) and indirect (seeing other people who were stressed) experience of stress. The study also explored whether children thought people could prevent and/or manage stress and if so, what could be done to cope with stress. And finally, the study aimed to explore how children learned about stress.

Based on previous research exploring children's understanding of health and illness, it was hypothesised that children's understanding of stress would develop with increasing age, however, due to the lack of previous research exploring stress per se, it was not possible to identify at what age children would begin to have an awareness of stress. It was also not known how experience would influence children's understanding.

6.3 Method

6.3.1 Design

This descriptive, non-analytic, cross-sectional, focus group study explored children's perceptions of stress. Comparisons were made across gender and age groups. The focus group was structured, in so much as the moderator introduced the setting and the questions, and encouraged all children to talk, if they wanted to. The interview schedule was unstructured as the questions were asked in the most appropriate order given children's previous responses.

6.3.2 Participants

The age range of 4- to 11-years was used in the present study for a number of reasons. Firstly, it was felt important to look at the development of understanding throughout early childhood. Secondly, according to Piagetian theory, cognitive developmental changes are likely to occur during this period (in Chapter 2, it was noted that key developmental changes were said to occur around the age of 4-, 7-, and 11-years of age). It was also documented that, according to Piagetian theory, children should not have an understanding of

abstract concepts until 11-years of age. It was felt important to explore this age group to see whether children's understanding of stress precedes their understanding of abstract concepts. The age range 4- to 11-years was also selected as this covers the early compulsory educational years in UK schools (i.e. the full range of children within primary schools).

Previous research (e.g., Mauthner, 1997), has found that gender differences occur in small focus groups. Mauthner (p.21) reported "*Playful banter, bickering, and competitiveness when the gendered power relationships between children were most visible*". Therefore separate groups were run for male and female children. Females were selected from a female only youth club; males were selected from a youth club for both males and females, but with predominantly males. Thirty one children aged 4-5 (girls=3; boys=4), 6-7 (girls and boys both $n=4$), 8-9 (girls and boys both $n=4$), and 10-11 (girls and boys both $n=4$) were purposively selected from children who attended two youth groups in the East Midlands. Participants within the same youth clubs were selected in order to minimise anxiety through familiarity of group members. Wherever possible, children from different friendship groups were chosen to allow group members to participate in the discussion, without feeling that they had to agree with their closest friends. All children were asked whether they were happy to talk with the other children selected to be in their group. Most participants (97%) were White British and all spoke English as their first language.

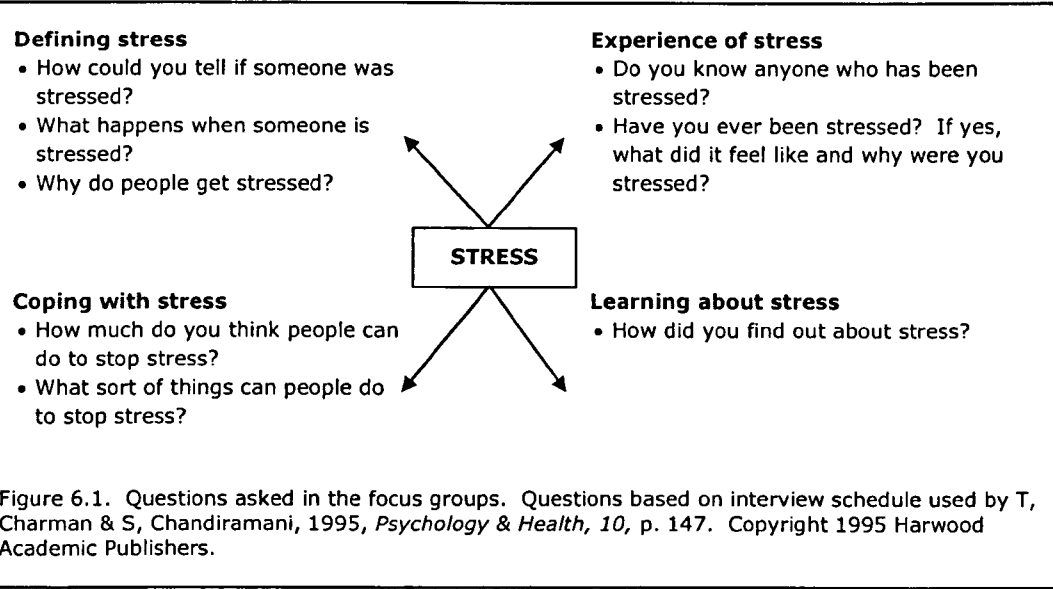
6.3.3 Ethics

Ethical considerations relevant to the programme of research were considered in detail in Chapter 4. For this particular study, consent was determined by youth club staff. Having received information about the project, the staff at both youth clubs felt that the study did not require parental consent and were happy to act in *loco parentis*, as the task was similar to activities that children regularly took part in at the setting. However, details of the study were included in the youth club newsletters, sent to all parents, giving them the opportunity to opt their child out of the research if they so desired (by contacting youth club staff). Therefore, the level of consent obtained was a signed informed consent form from youth club staff acting in *loco parentis*, an opt-out option for parents and verbal assent from children, after an age-appropriate explanation of the project.

6.3.4 Materials

Prior to conducting the focus group, an informal interview schedule was developed based on questions from previous similar research (Charman & Chandiramani, 1995). Small adaptations were made to the schedule to explore the topic of stress in a focus group setting and to ensure that the questions were relevant to children’s experiences (see Figure 6.1). A handheld audio tape recorder was used to record the discussions.

Figure 6.1. Focus Group Schedule



6.3.5 Procedure

Firstly, children were told about the project in a large group in the youth club setting. They were informed that the study would involve small groups of about four children, answering questions about the word stress. They were told that there were no right or wrong answers to any of the questions and that the researcher was interested in finding out what different children think. After being informed about the project, children were asked to raise their hands if they wanted to take part in the research. Children were purposively selected by youth club leaders according to age group (aged 4-5, 6-7, 8-9, and 10-11) and friendship groups, as discussed in the ‘Participants’ section above (Section 6.3.2).

Focus groups were conducted in groups of three or four children, in a relatively quiet room within the out-of-school club setting. Once in the quiet room,

children were asked to sit in a circle on the floor, along with the researcher, and given further details about the study. Again, it was stressed that there were no right or wrong answers to any of the questions. Children were shown the audio-recording equipment and given the opportunity to play with it. The audio-recorder was placed in the centre of the circle. Individual children took it in turns to speak in a whisper, then to speak in a normal voice, and to shout loudly, as well as to all talk together, whilst being recorded. The recording was then listened to, so that children could understand that they needed to talk in a normal voice, but not all talk together so that the recorder could pick-up their individual voices. Children were given the opportunity to ask any questions before the focus group began.

The word 'stress' was written in large letters on an A4 sheet of paper (in lower case letters) this was shown to, and read aloud to, the children. The paper was then placed in the centre of the circle. Children were told that the researcher wanted to know about the word stress and were asked whether anyone could say what they think that the word stress means. All children who wanted to answer were given the opportunity to do so. The researcher only interrupted to clarify what children meant, usually by re-phrasing the child's statements. The researcher made field notes throughout the process to record which child was speaking. Once the conversation was exhausted, the next question (or most appropriate question leading on from the children's responses) was asked until the question schedule (Figure 6.1) had been completed. Once the focus group had finished, on an individual basis, children were again given the opportunity to ask any questions. During the debriefing, children were told that what they had said on the recording would be copied and written on to a computer for the researcher to look at. Children were asked whether they were happy for this. Children were thanked and rewarded with a sticker for taking part. This process was repeated for each age group of children in male and female youth club settings.

After completion of the female focus groups it was noted that the recording equipment had not worked. Consequently, immediately after the focus groups, the field notes were used as a memory prompt to make detailed typed notes about the statements children had made. In an effort to retain continuity, the subsequent focus groups with male participants also used field notes rather than audio recordings. Analysis used the 'large-sheet-of-paper approach' (Catterall &

Maclaran, 1997) and focused on noting children's responses, across the age groups, under the themes/headings previously identified.

6.4 Findings

This study explored children's perceptions of stress using a focus group method. No parents opted out of the research; however, approximately 50% of children did not volunteer to take part in the study, with fewer young children wanting to engage in the research.

One male and one female focus group was conducted with each age group (aged 4-5, 6-7, 8-9, and 10-11). In the female youth club, there were ten girls in the youngest age group (aged 4-5), only three of whom volunteered to take part in the research. All three children were selected for the focus group. In all other age groups, several children volunteered and four children were selected to take part. Overall, responses were similar across genders. Discussions with boys were more animated (e.g., boys demonstrated more actions such as holding one's head and stamping), and were slightly longer in length. However, timings of groups were similar across genders, with both male and female groups increasing in length with increasing age.

6.4.1 Summary of each focus group

A descriptive account of the focus groups with each group of children will now be presented.

Focus group 1: Girls aged 4 and 5

Definition: During the focus group it emerged that only one of the three children had previously heard of the word stress. The other two children had never heard of stress. Although the children did talk about being 'happy', 'sad', and 'angry', they were unable to define the concept of stress.

Experience: The child who had heard of stress had no personal experience of stress, but she had heard her mother say, 'I'm stressed'. She described her mother as being 'angry' and 'sad' when she was stressed, but also commented that, 'stress is when you smile' and talked about being happy when stressed.

Coping: It was difficult to elicit information about coping as all children had struggled with defining the concept.

Learning: The child who had heard of stress could not remember where she first learned about stress.

Focus group 2: Boys aged 4 and 5

Definition: Participants struggled initially with defining stress, but with reassurance from the researcher that there were no right or wrong answers, two of the four children identified that stress might mean when you are 'tired', 'annoyed' or 'noisy'. Clarification of the latter term revealed that the boy meant that people who are stressed might be noisy (e.g., may shout). Another boy commented that children being noisy might make adults stressed. One boy questioned whether stress meant being 'mardi' (a local colloquialism meaning angry/cross/grumpy), but seemed unsure. The other two boys remained quiet and could not be encouraged to give a verbal definition. When asked how you could tell if someone was stressed, one participant made a sad facial expression and said that he could tell a person was stressed because he/she 'looked like that', this was supported by another boy's comments. Another participant said that they could tell if a person was 'grumpy'.

Experience: Three of the four children in this age group reported that they had seen someone else who had been stressed. Three had seen their mothers stressed. One had also seen his father stressed. This boy went on to explain that his father 'gets tired when he is stressed'. He demonstrated how his stressed father sat in a chair in a relaxed position with his eyes closed. This prompted discussion from the other children who stated that 'people may go to bed when they are stressed' and that they may be 'told off' if they 'wake up the stressed person'. One child talked about his sister being stressed and stated that when she is she 'gets grumpy and shouts and stomps and is naughty'. Only one child had been stressed themselves, but was unable to say what this felt like. One participant stated that he had not been stressed, but followed this by talking about being told off when he was tired, expressing that this made him feel 'annoyed, sad, grumpy and bored'. All children were able to give reasons about why they may be stressed. These included being 'left out' from playing with others, being 'shouted at', and being stressed when they 'couldn't be bothered to do something' that they had to do.

Coping: Children were unsure about how to stop stress. One child stated that you might go to bed and the other children agreed. They were unable to identify any other ways to stop stress.

Learning: All children were unsure where they had learned about stress, but 3 of the 4 children specified that they may have learnt from family members (mum/sister/dad).

Focus group 3: Girls aged 6 and 7

Definition: Two of the four girls were able to provide definitions of stress, indicating that stress was a 'feeling' that happened when you are 'angry' or 'tired'. After listening to the other children's definitions, all children in this age group were able to join in the focus group and all contributed to the discussion of the remaining questions.

Experience: Three of the four children in this age group reported that they had seen someone else who had been stressed. One had seen her father and all three had seen their mothers stressed. Only one child had been stressed herself, but she was unable to say what this felt like other than 'I felt angry'. Stressors included falling out with friends, not having anyone to play with, and being bored.

Coping: All of the children in this age group reported that there was 'nothing people could do to stop stress'.

Learning: All girls were unaware of where they had heard about stress.

Focus group 4: Boys aged 6 and 7

Definition: All children provided a definition. These included that stress happens if 'people get bothered and unhappy' or 'when you want to do something but can't'. All participants agreed that stress also happens when you are tired. Children thought that you could tell that people were stressed by the positions that they were in such as 'holding their heads'. One participant stated that a stressed person might get angry or annoyed and might 'want to kill or strangle us'.

Experience: All children had seen others who had been stressed; these included mums, dads, other family members (auntie/uncle/cousin), and friends. All children also reported feeling stressed themselves. Stressors included siblings being annoying, falling out with friends, and being bored. One child reported feeling 'horrible and stuff' when he was stressed. Another child described feeling 'worn out' and 'upset'. The child who stated that he was stressed when he was bored described feeling 'tired and lonely' when stressed.

Coping: Children struggled to think of anything that people could do to stop stress.

Learning: All boys were unsure where they had heard of the word stress, but one stated that it may be from his mother. Another boy commented that he may have learned about stress when he heard his mum swearing, as she swore because she was stressed!

Focus group 5: Girls aged 8 and 9

Definition: All children in this age group were able to provide appropriate definitions. For example, one child talked about being stressed because of having to tidy her bedroom - something that they did not want to do. The child described that they 'got cross, shouted, and slammed the bedroom door'.

Experience: Three of the four children had personal experience of stress. All children had indirect experience of stress and commented that, in addition to seeing their parents stressed, they had also seen friends and other family members (siblings, cousins, aunts) who were stressed. Potential stressors for children included doing homework, fighting with family and friends, not being listened to and having to do things that they did not want to do.

Coping: Girls thought that there were a 'few things' that people could do to stop stress and stated that people might 'have a glass of water to try and calm down', 'to tell other people' and similarly 'to talk to their friends/family'.

Learning: Children were unaware of where they had first heard about stress. Although one girl believed that she learned about stress from her mother, she was unable to pinpoint when or how this learning may have occurred.

Focus group 6: Boys aged 8 and 9

Definition: All children provided definitions of stress. One boy commented that stress happened when you are 'doing too many things at once'. He described stressed people as making 'grr noises'! A second child expanded on this and described stress as occurring when 'you can't do something'. He commented that you might get 'angry or annoyed' and 'might throw things'. Another boy stated that if someone is stressed they may 'tell you to go away and not listen to you', all boys agreed with this comment and discussed a number of instances in which they had been told to go away by stressed parents. The final boy added that you may be able to tell that someone is stressed because they get a 'red face'.

Experience: All children reported that they had seen others who had been stressed. One child described his experience of his chronically ill mother and mentioned how stressed she is 'because of her disability'. Two participants stated that they had seen their mothers stressed and one described how his mum and dad argued when they were stressed. He described his mum 'stomping upstairs' after 'having words with dad'. One participant stated that he had seen his sibling stressed. All children reported that they had also felt stressed themselves. One child described his stress as getting to a point where he felt 'so red I was almost about to burst and then after I felt worn out'. All

children agreed that they felt 'annoyed and got angry' when stressed. Another child described how he felt stressed when he had 'a lot on my mind' and when he could not do things that he was trying to do, like homework. The child described how he felt 'mad at myself 'cause I can't do things'.

Coping: One child commented that stressed people may 'go to hospital' when they are severely stressed. Children were unable to identify any other ways of coping with stress.

Learning: Children were unaware of where they had learned about stress.

Focus group 7: Girls aged 10 and 11

Definition: All girls in this age group were able to define stress. They described stress in terms of getting 'cross and angry' as well as when you 'lose control'.

Experience: All children had seen others who had been stressed, these focused on family members (mums, dads, and siblings). Three of the four children had direct experience of stress. Their discussions centred on children being stressed when they 'could not do something that they wanted to do' or 'when they had to do something that they did not want to do'. Children also mentioned that they felt stressed when they were unable to do their homework, particularly numeracy. Children described a number of different stress reactions when they were personally stressed, such as 'felt hot', 'got cross', and 'shouted'. Children also talked about 'losing control' and 'not being able to eat their tea'.

Coping: Children thought that there were a 'few things' that people could do to stop stress and highlighted that 'talking to other people', 'watching television/playing on their Xbox', and 'telling yourself to calm down' might help to alleviate stress.

Learning: Three of the four children were unable to state where they had learned about stress. One child stated that her mother had told her about stress.

Focus group 8: Boys aged 10 and 11

Definition: All children were able to provide definitions of stress. These included feelings of 'anger' 'getting annoyed' and 'frustrated' and possible consequences such as 'hitting and smashing stuff'. One child described that stress happened when 'your mind goes blur'. Another child described how stressed people 'shout for no reason', other children agreed with this and conferred that stressed people 'tell you off for stuff you haven't done'.

Experience: All children reported that they had both direct and indirect experience of stress. Children reported seeing their parents (both mums and dads), friends, and friends' parents being stressed. One child described how his

mum 'smoked a lot' when stressed; he went on to say how she got annoyed when stressed and would 'slam the door and go and cry in her room'. Another commented that some people drink alcohol when they are stressed. This discussion led to comments about stress being 'dangerous' and hypothetical comments about drunk people trying to 'kill themselves when stressed'. Children also had direct experience of stress and reported 'other people being annoying' and 'being picked on' by others as stressful, as well as 'homework', 'being bored', 'having tests' and 'getting frustrated'.

Coping: One child reported that 'letting out feelings' might help people to cope with stress. When asked to clarify what he meant by 'letting out feelings' he stated crying, banging one's head on a pillow and throwing things. Another child suggested that running away might help people to cope with stress.

Learning: Children again struggled to remember how they learned about stress. Two children stated that they did not know. One boy identified that he may have learnt about stress from his best friend who was 'always stressed' and the other stated that he may have learnt about stress from his dad's partner.

6.5 Discussion

The findings presented a descriptive account of children's understanding and experience of stress in the context of their daily lives, elicited from focus groups of children aged between 4- and 11-years. As the primary aim of this study was to identify a suitable method to use in the main research, the discussion here focuses on the method, rather than how the findings differed from previous research presented in the background chapters of the thesis.

In this preliminary study, it was demonstrated that children were able to discuss their perception, understanding, and experience of stress and from this, it was possible to identify terminology which participants used to talk about stress. The broad topic areas specified in the questions were undoubtedly suitable and questions were overall unambiguous, although there was some overlap across questions. The appropriateness of the questions may be best evaluated by considering the children's responses, across the age groups, to each area: defining stress, experiencing stress, learning about stress, and coping with stress.

6.5.1 Comparisons across age groups

In terms of definition, the study aimed to explore what children understood the word stress to mean, whether they could tell when someone was stressed and what happened to an individual when they were stressed?

The youngest groups of children did struggle to define stress, particularly the youngest female group; this may be attributed to most children in this age group never hearing of the word stress before. As boys of the same age were able to talk about stress, this may be because of this particular group of girls, rather than an effect of the age group. One explanation for this is that children were able to talk about stress, but could only do so when they had experience of the concept. Further research considering this youngest age group would be useful; this research should ascertain whether children have heard of the word stress before commencing the data collection. One of the problems of this study is that only one group of children was used from each age group. As this was a preliminary pilot study, this was deemed appropriate. However, it is possible that different results would have been found with different groups of children in the same age range. In a larger study, it may have been better to conduct several focus groups with each age group of children and continuing data collection until saturation point was reached.

It is also possible that this problem would be overcome by having a larger number of children in each focus group. That is, from the other focus groups, it appeared that children were able to join in the conversation and seemed to show understanding of the concept when other children provided definitions, even if they were initially unable to define stress. In a larger group, it is likely that more children will have heard of stress and will be able to define the concept; future research using focus groups should therefore consider a larger group size. It has been suggested that focus groups with children should use small numbers of children. Scott (2000) advocates that groups should be less than eight children, Hill, Laybourn, & Borland (1996) state that the optimal number of children is five or six, whereas Mauthner (1997) indicate a group size of three children is optimum. It may be that this latter group size is too low for very young children. Alternatively, some method of the researcher informing young children about stress, for example, by describing the concept, may be useful prior to questioning the youngest children. This method has been used in previous similar research (e.g., Charman & Chandiramani, 1995) and may be useful in future studies.

Children's responses to the questions 'How could you tell if someone was stressed?' and 'What happens when someone is stressed?' were similar across all age groups and some children seemed unsure how the questions differed. Therefore, in future research it may be useful to combine these questions. However, some children did provide further information in their second answer, and some children showed actions or facial expressions in response to the second question, illustrating that the second question may act as a prompt. In future research, it may be useful to develop prompts for this and the other questions, to be used when children have difficulty in generating their own ideas.

Telling children that there were no right or wrong answers undoubtedly encouraged children to verbalise answers they may not have otherwise shared, as evidenced in the youngest male group where boys only responded when they were told again that there were no right or wrong answers, however, this also brought problems. Some of the children's responses were not accurate. For example, one 4-year old child commented, *'Stress is when you smile'*. As the researcher had already stated that there were no right or wrong answers, it was difficult in a group setting to correct this. This was dealt with by the researcher stating, *'That's an interesting point; it sounds like you are talking about being happy, lots of people smile when they are happy, does anyone else have any ideas about what they think stress is?'*. Despite trying to encourage the group to talk about stress, children continued to talk about being happy. In future research, it may be easier to conduct interviews on a one-to-one basis where 'incorrect' answers are not imposed on the other children.

However, upon reflection, it may be that the aforementioned smiling comment from the child was indeed accurate and did reflect an emotion that she associated with stress. All children in the youngest group talked about being happy, this may be due to their misunderstanding of the concept of stress. Alternatively, it may be because adults who are stressed around children often 'put on a happy face' when they are with their children, perhaps portraying mixed emotions to the child. This has been considered within the large body of theory of mind literature and has been described as false facial self-presentational display rules (Banerjee & Yuill, 1999). Theory of mind refers to children's ability to see a situation from another person's perspective, that is, to explain the behaviour of others by reasoning about others' mental states, including desire, belief and intention (Filippova & Astington, 2008). There is an additional body of research exploring children's understanding of second-order

mental states, that is, children's understanding of others' mental states, 'beliefs about beliefs' (Broomfield, Robinson, & Robinson, 2002, p.63). This has been in the context of 'white lies', as well as children's understanding of false facial expression, such as smiling when one has received a gift that one is disappointed with (Broomfield, Robinson, & Robinson).

It was evident from the children's discussions, in the other focus groups, that some children were aware of parental distress when experiencing stress. For example, one child commented about his mother crying in her room before coming out and being okay. This perhaps contributes to younger children's mixed descriptions. However, as 'happy' was only mentioned in the youngest age group of children, it seems more likely that this was simply due to misunderstanding of the stress concept. Further research is necessary to explore this further.

Children's liveliness and rich imaginations were evident in some of the focus groups, with some children 'acting out' emotions or behaviours; this could be built on in future research and may encourage the younger children to present non-verbal accounts of stress, as there were some age differences evident. Children across all age groups discussed emotions associated with stress. Children in the youngest two age groups talked about a variety of emotions, particularly being sad and angry/annoyed. At certain parts of the interview, it may be that children were discussing anger, rather than stress per se. For example, when describing the visible behavioural consequences of stress – the stomping/stamping of feet and banging of doors, these could perhaps be consequences of feeling angry rather than stressed. It would be interesting to explore this further in future research. Only one child (male aged 9) mentioned a biological factor – a red face, although others in the group did concur with this as a consequence of stress. Similarly, only one child (male aged 10) mentioned cognitive factors associated with stress – 'your mind goes blur'. It would be interesting to see whether these factors were elicited in a larger sample.

A difference in the level of children's understanding was apparent across age groups; children's definitions became broader and more detailed as they increased in age. This is similar to the results found in other areas of health and illness research (Bird & Podmore, 1990; Charman & Chandiramani, 1995; Normandeau et al., 1998). This may be because older children have greater language skills and are able to verbalise their understanding better than younger

children. Older children are also more likely to have had experience of discussing various concepts during their schoolwork and to have greater familiarity with the focus group method. Alternatively, it may be that children's understanding only increases with experience of stress.

In relation to experience, the study aimed to identify whether children had both direct (children's own stress) and indirect (seeing other people who were stressed) experience of stress. Children's direct experience of stress increased with age. In the youngest two age groups, 3 girls and 3 boys (aged 4-5) and 3 girls (aged 6-7) did not have personal experience of stress. This is in contrast to the older age groups where only one 8- to 9-year old girl and one 10- to 11-year old girl had not personally experienced stress.

Most children, across all age groups, in the focus groups had seen other people who had been stressed. Only one boy (aged 5) and three girls (aged 4, 5, and 6) had not seen other people stressed, that is, did not have indirect experience of stress. Children in the older age groups reported more experience of stress than younger children, reporting a greater variety of people they had seen stressed. This may have been because older children possess better language skills to be able to describe their wider family members, for example, aunts, cousins etc., or that they have greater memory skills to recall people they have seen who have been stressed. It may also have been that, because they are older, they have had more opportunity to witness stressed people. In future research, it may be useful for prompts to be used to explore children's experiences. For example, 'Do you know anybody who has been stressed, for example, your teachers, or your parents, or your friends or someone else?'

Although children within each focus group did agree with some of the other children's statements, it was clear that not all children perceived the same factors to cause stress. This shows that, like adults (Selye, 1974), children's perception or interpretation of stressors is individualistic. It appeared that boys, across all age groups, seemed to have greater understanding of stress than girls; tentatively, it may be hypothesised that this is because of their greater reported experience. It was not possible to tell from this small sample how experience influenced understanding, but further research exploring the relationship between understanding and experience would be useful, as would utilising a larger sample where gender differences could be noted.

In terms of coping, the study investigated whether children thought people could prevent and/or manage stress and if so, what could be done to cope with stress. In the youngest female group it was difficult to elicit information about coping as children struggled with defining the concept. It may be that this was related to age, in addition to lack of understanding, as their male counterparts and children in the slightly older (6- to 7-years) age group, also struggled to identify anything that people could do to prevent and/or manage stress. It was not until 8- to 9-years of age, that children began to identify coping strategies that stressed people may use, although their ability to name coping strategies was still limited. The oldest age groups of children were able to mention many more coping strategies than the children in any of the younger focus groups.

Perhaps unsurprisingly, children with less experience of stress were less able to identify ways to cope with it. This may be different if stress is explained to the younger children before asking the additional questions. Children were reluctant to engage in the question and answer format for this question. Therefore, a more interactive method of response may be useful, perhaps using a Likert scale; although it would be essential to ensure that any modifications were age-appropriate.

Finally, the study aimed to explore how children learned about stress. Children particularly struggled with this aspect of the study. Most children, across all age groups, did not know how they found out about stress. Only one girl and one boy were able to identify who had told them about stress. More children stated that they may have learned about the concept from their mother or father but were not clear when this was or how this learning occurred. Although it would be interesting to look into this in further research, the universal lack of knowledge across all age groups of children suggests that it may be difficult to identify how children learn about stress. Previous research has found that children were able to elicit this information with regards to depression (Charman & Chandiramani, 1995), so it may be that in a larger sample, different findings are identified.

6.5.2 Strengths and limitations of the study

This small scale, preliminary study has shown that children's understanding of stress is an important topic for further research. However, the findings must be evaluated in terms of a number of limitations of the study, particularly

restrictions of the setting, limited sample size, and failure of recording equipment. These are considered further below.

The study was conducted in an out-of-school youth club setting. Although no parents opted out of the research, approximately half of the children did not volunteer to take part in the study. This may have been, at least in part, due to the setting. Children were not asked why they did not want to take part, but it was noticed that a number of children, particularly younger children were engaged in other activities (e.g., arts and crafts) that were perhaps more appealing to them than taking part in a focus group. In addition, although a separate room was provided, it was also difficult to control extraneous variables in the youth club, in particular noise levels which travelled through the building. It was apparent that, at times during the focus group, some children heard their favourite game being played and wanted to go and take part. Although no children withdrew from the focus groups, they perhaps did not engage as much as they might have done in a quieter setting where other competing activities were less appealing to them. In research with children, it is important that participants are familiar with the setting, as opposed to being in an unfamiliar clinic, laboratory, or university setting, in order to minimise any potential distress. However, due to the aforementioned problems, further research may benefit from being conducted in a setting without so many competing activities.

The sample in the present study was limited in size and consisted mainly of White British children, attending out-of-school clubs in a relatively affluent area in the East Midlands. This limits the generalisability of the findings. Further research, including children from a variety of areas, may yield different results. In addition to the aforementioned factors, a number of important learning points have been noted from this study, particularly in terms of methodology, including data recording, analysis, and problems with the focus group method itself.

One of the major problems in this study was a lack of audio-recording due to equipment failure. Field notes were more detailed in the male group, due to the knowledge of requiring these for analysis, in comparison to the female group (where it was thought an audio recording would be used and the notes simply used as an aide memoir to note who was speaking). However, making notes during focus groups is difficult and some data will inevitably have been lost (Greig et al., 2007). The lack of recording equipment may have contributed to the observed differences between male and female groups, because boys may

have been less threatened to know that they were not being recorded. However, due to the children liking the testing of the equipment in the female focus groups, this seems unlikely. A back-up audio recorder would have been a useful addition to the focus group, to overcome the recording failure. However, the benefits of this have to be weighed up against the potential distress it may cause to participants to see several recording devices. There have been some concerns noted about using recording equipment in interviews (Rich, 1968), but more recently, it has been suggested that adult participants see recording equipment as a natural part of interviews (Harrison, 2002). However, it may be that this is not yet natural to children. Perhaps a way of testing whether the audio-equipment is working during the interview may be more useful and something to be considered in future studies. As a result of the lack of data recording, the analysis used the 'large-sheet-of-paper approach', as opposed to an 'annotating the scripts' approach, which is considered superior (Catterall & Maclaran, 1997). From not having the audio-recordings and using this method of analysis some of the quality of the data may have been lost.

6.5.3 Evaluation of the focus group method

The focus group method itself did have some problems. With the youngest age groups, children were reluctant to talk, especially those who had not heard of stress before. It may be that being in a group situation, talking about an unfamiliar concept, is in itself stressful for these young children. Making the research more child-friendly for the youngest age group of children may be productive, for example, including ice-breaker games to help them gain familiarity with the researcher.

It was expected that the focus groups would allow all children to take part in an activity that they were familiar with. Children, of the age range used in these preliminary studies, are used to talking and playing with friends in small groups as they do so through the education system (from nursery onwards). Previous research has documented that focus groups facilitated discussion in children aged below 7-years of age (Mauthner, 1997). This was not found so much in the present focus group study as some focus groups with young children under the age of seven were more like individual interviews in a group situation, rather than interactive talk between children. Groups with younger children required a lot of facilitating and discussion did not flow between group members. This may have been due to the unfamiliarity of the concept of stress in the youngest age groups of children. Certainly, in groups where there was more experience of

stress, participants keenly talked about stress. It is not clear whether this was a result of age, knowledge, experience, or a combination of these factors.

Alternatively, this may have been because of the lack of experience of the researcher in moderating focus groups. Despite a great deal of experience with children, the researcher had received no training in moderating focus groups. However, due to the fact that the focus groups worked well with the older children (with the same moderator), it may be that focus groups are not the most useful method for very young children.

One of the positive features of the focus group method is that it is useful to widen responses and to stimulate memories in participants (Catterall & Maclaran, 1997). However, this may also work the other way. In the present study, some of the younger children had misperceptions and limited knowledge about stress, which may have been passed on to other children in the group.

Although the older children had more experience of stress and were all willing to talk, the focus group format still caused some difficulties even with the older children. For example, in the focus group with the oldest age group of female children, the conversation was dominated by one child, despite the best efforts of the researcher to encourage all children to answer. This led to problems in establishing the understanding of all children in the group, as some children may have felt intimidated to contradict the 'group leader'. Problems, such as these, associated with focus groups have been documented in previous literature; it may be that researcher training in running focus groups helps to alleviate these problems in future research. For example, in retrospect the use of a listening ball as used in previous research (e.g., O'Kane, 2000), whereby children can only talk if they are holding the ball may have helped group dynamics.

6.5.4 Child protection

The final area to consider, albeit an important area, is child protection. Three potential issues of concern were noted in the male groups. In line with the ethical considerations made before the research began, these issues were sensitively raised, on an individual basis, with the relevant child after the focus group. More details about each concern are provided here. During the focus groups, one boy (aged 7) commented that stressed people might 'want to kill or strangle us'. From discussion with this child, it appeared that this was a fear without foundation, that is, no-one had ever told the child that they may want to hurt him. Another boy (aged 11) commented during the focus group that his

father 'hit and smashed stuff' when stressed. In the individual discussion with the researcher, the boy clarified that, on one occasion, his father had hit the door, and that his father had later explained to the child that this was not a good way of dealing with his anger. The final concern was that one boy (aged 10) commented that 'running away might help people to cope with stress.' Individual discussion identified that the boy felt that some people may run away to get away from the stress, but this was not something that he was contemplating. After discussion with children and subsequent supervision, it was felt that these issues did not need to be followed through further, although they were mentioned to the youth club leaders, with the child's consent.

In addition to these concerns, the oldest male group's discussion needed to be facilitated carefully, as children expressed concern over adults drinking alcohol and potentially wanting to harm themselves. During the discussion, it was clear that boys were hypothesising about potential situations that may occur, but were unclear about the effects of alcohol. A more detailed risk assessment may be useful in future studies, particularly what to do when children raise sensitive issues.

6.6 Overview of Chapter

In summary, this study provided a descriptive account of children's understanding and experience of stress elicited using focus groups. Consideration of these accounts showed that the broad topic areas were suitable for children aged 4- to 11-years, although some children struggled with the question asking about learning of stress. The study also identified key terminology that children use to talk about stress, which could be used in the development of future research.

It was found that some children, across all age groups, had heard of the word stress, although this was limited in the younger children. Some children aged 4- to 5-years did have an understanding of stress, although this increased dramatically at the age of 6- to 7-years. Differences in the level of children's understanding were apparent across the age groups; children's definitions became broader and more detailed as they increased in age. This may be because older children have greater linguistic capability or that children's understanding only increases with experience – children in the older age groups reported more experience of stress than younger children. It was not possible to tell from this small sample how experience influenced understanding, but further

research exploring the relationship between understanding and experience would be useful, particularly with a larger group of children. The findings from this study also indicated that the issues which children perceive to be stressful, as well as the stress reaction, differ between individual children. This would also be interesting to follow up in future research.

The focus group method provided a useful starting point to identify the language that children used to talk about stress which can be used in the development of materials for use in the subsequent studies. It also highlighted a number of issues to consider in future research. However, the method also had some limitations. Overall, it is concluded that another method of study may better assess children's conceptualisation of stress across age groups.

7. CHILDREN'S PERCEPTIONS AND EXPERIENCE OF STRESS: A SEMI-STRUCTURED INTERVIEW STUDY⁴

7.1 Abstract

Background: The previous focus group study highlighted that children's understanding of stress was a worthwhile topic to explore, but it was noted that an alternative methodology may more be useful. It was also noted that some younger children had not previously heard of stress. A story book resource, to inform young children about stress, was therefore developed and used in this second preliminary study.

Method: A semi-structured interview format was used to elicit information from 50 children about their understanding and experience of stress, across four age groups (aged 4-5, 6-7, 8-9, and 10-11).

Findings: Most children were able to define stress, with older children providing more complex responses. Many children had indirect and/or personal experience of stress. Younger children were more likely than older children to report that there was 'nothing' people could do to stop stress; children reported using both adaptive and maladaptive coping strategies.

Conclusion: Some young children had a basic understanding and experience of stress; both understanding and experience developed with age, with there being a particular shift in understanding at around the age of 6- to 7-years. The semi-structured interview method was an effective way of eliciting information from children about their understanding and experience of stress, although, in future research, it would be useful to develop a greater rapport with the child before questioning him/her.

7.2 Introduction

From the initial focus group study, it was noted that young children may benefit from being provided with a definition of stress. James (1995) described the advantages of using stories and drawings to engage and communicate with children. Therefore, a storybook was developed which detailed stressors children described during the focus groups. This was read to young children who could not immediately describe stress, prior to conducting a semi-structured interview.

⁴ A summary of this study has been published in patient Education and Counselling (Valentine, A.Z., Buchanan, H., and Knibb, R.C. (2010). Children's knowledge and understanding of stress: A preliminary investigation. *Patient Education and Counselling*, 79(2), 255-257).

The semi-structured interview has frequently been used within research seeking to explore children's perspectives. For example, Charman & Chandiramani (1995) used this method to establish children's understanding of chicken pox and depression. Depression was thought to be a comparable term to stress, therefore, the present study was based on Charman & Chandiramani's (1995) research.

Despite initial ideas about how children conceptualise stress being gained from the focus group study, it was still not clear how (particularly the youngest) children perceived stress. Therefore, individual children were asked the open-ended interview questions. It was anticipated that the open-ended format would allow children to provide the most salient and accessible aspects of their understanding (Normandeau et al., 1998).

As in the research outlined in the previous chapter, the interview study consisted of four different age groups of children and the research aims considered four aspects of stress: definition, experience, learning and coping. Overall, the aim of this interview research was to extend the previous study and to further explore children's understanding and experience of stress in the context of their daily lives. Based on the previous study and previous research exploring children's understanding of health and illness, it was anticipated that some children aged 4- to 5-years would have understanding, but that this understanding would develop with increasing age, becoming more sophisticated, accurate and multi-faceted. Due to the lack of previous research exploring children's understanding of stress, it was not possible to identify how children's experience of stress would increase their understanding.

7.3 Method

7.3.1 Design

This study was a quasi-experimental between-participants design. The independent variable was age (4- to 5-, 6- to 7-, 8- to 9-, and 10- to 11-years), the dependent variables were children's understanding and experience of stress and coping with stress. In terms of understanding, children were allocated a knowledge score (none, poor, limited, extensive) depending on the number of domains (emotional, behavioural, cognitive, biological, other) that they specified during their individual interview. Children were classed as having no knowledge if they were unable to describe stress, poor knowledge if they were able to describe one domain of stress, limited knowledge if they mentioned two or three

different domains, and extensive knowledge if they mentioned four or five domains. Similarly, children were allocated into one of four experience categories determined by whether they had: (1) direct experience (i.e. had personal experience of stress); (2) indirect experience (i.e. had seen someone else who has been stressed), (3) both direct and indirect experience or (4) no experience. Children’s knowledge of coping with stress was assessed on a Likert scale and using qualitative responses.

7.3.2 Participants

Following on from the previous study (conducted within an out-of-school club), another environment was sought where some extraneous variables could be controlled. Schools were selected, as it was considered that children would be familiar with the surroundings and used to answering questions in this setting. The age range 4- to 11-years was demonstrated in the first study to be appropriate to explore developmental changes in understanding. As well as covering the key stages of cognitive development, this age range is also in line with the UK education system. This meant that children could be selected from the same schools and schools could take a whole school approach to addressing stress, if they wished to follow on from the research. Children in the UK are required by law to attend formal education between 5- and 16-years of age, with many children starting in the first school class – reception, at 4-years of age. Most local education authorities (state) schools are split into primary schools (for children aged 4- to 11-years) and secondary schools (for children aged 11-16). The age range of children in each class at primary schools is shown in Table 7.1.

Table 7.1. Age Range of Children Within UK Primary Schools

Information	Infants	Primary School					
		Juniors					
Name of year group	Reception	Year 1	Year 2	Year 3	Year 4	Year 5	Year 6
Age range (years)	4-5	5-6	6-7	7-8	8-9	9-10	10-11

In the present study, children from reception, year 2, year 4 and year 6 classes were selected to represent four groups of children aged 4-5, 6-7, 8-9 and 10-11. An attempt was made to obtain a stratified sample of schools from a variety of backgrounds, however, few schools agreed to participate and the sample was

therefore self-selecting. Children were recruited from two schools in the East Midlands of England. According to the latest school Ofsted Report, participants were from communities with predominantly White British backgrounds with English as their first language. Also, the method of selecting children within schools was not random. Parents were first asked to consent, children whose parents had consented were asked for their assent, and finally, teachers were asked to select pupils with a range of academic abilities.

Two participants (both males aged 4-5) who had previously agreed to take part in the research, were absent on the day of testing. The final sample therefore consisted of 50 children (18 males, 32 females). There were five males and eight females in each age group apart from the youngest group where only three males took part. The age range of children was from 4-years 11 months to 11-years 5 months.

7.3.3 Ethics

Again, a full exploration of the ethical considerations made in this study can be read in Chapter 4. For this particular study, the level of consent was set by the headteachers. Consent involved signed informed consent from the headteacher acting in *loco parentis* and from parents (who opted-in to the research), and verbal assent from children (whose parents had opted-in to the research) after an age-appropriate explanation of the project.

Two children withdrew from the study during the interview. One child would not sit still towards the end of the interview, preferring to run around the small room, providing occasional nonsensical utterings. From his behaviour, this was taken as providing dissent/withdrawing from the study. One other 4-year old girl wanted to return to her classroom when the bell rang, as she did not want to be late for playtime.

7.3.4 Materials

Interview schedule. The same questions were asked as in the initial focus group study. An additional question was also added to the start of the scale. This additional question asked whether the child had ever heard of the word stress before. Prompts were developed for the other questions. The full interview schedule is shown in Figure 7.1.

Figure 7.1. Semi-Structured Interview Schedule

1. Have you ever heard of the word stress? <i>For example, have you ever heard anyone say 'I've had a stressful day' or 'Aahhh! I feel stressed'.</i>	
YES Continue with interview	NO Read story providing definition and examples
2. Can you tell me what you think stress means? <i>Remember there are no right or wrong answers, what do you think that 'stress' is?</i>	
3. How could you tell if someone was stressed? <i>Can you think of any ways that you could tell if someone was stressed?</i>	
4. What happens when someone is stressed? <i>When someone is stressed, what happens?</i>	
5. How did you find out about stress? <i>Can you remember when you first heard about stress?</i>	
6. Do you know anybody who has been stressed? <i>Can you think of anybody who you know who has been stressed?</i>	
7. Have you ever been stressed?	
YES Continue with interview – qu 7a	NO Go to question 8
7a) Can you tell me what that felt like? <i>How did if feel when you were stressed?</i>	
7b) Can you tell me why you think you were stressed? <i>What made you feel stressed?</i>	
8. How much do you think people can do to stop stress? [Measured on Likert scale] <i>Do you think that there is anything people can do to stop stress?</i> <i>You can put the pointer anywhere on the line, where do you think it best fits.</i>	
9. What sort of things do you think that people could do to stop stress? <i>Can you think of anything that you or someone else who is stressed might do to make themselves feel better?</i> <i>Is there anything else you can do?</i>	

Figure 7.1. Questions asked in the interviews, with amendments made following focus group study (Chapter 6). Phrases in italics show prompts. Prompts were used if children did not respond and/or when the researcher needed to clarify a point the child had made. They were also used if the child asked the researcher to explain the question, acting as a way of paraphrasing the question. Boxes show where decisions were made by the researcher regarding which question to ask next. Questions based on interview schedule used by T, Charman & S, Chandiramani, 1995, *Psychology & Health*, 10, p. 147. Copyright 1995 Harwood Academic Publishers.

Story book. An A5 story book, written and illustrated by the researcher was developed for the purpose of this study (summary Appendix 1). Illustrations were used to maximise children’s attention whilst reading the story (Rebok et al., 2001). The book aimed to clarify the meaning of stress for younger children. It used examples of stressors provided by the children in the previous focus group study (e.g., falling out with friends and struggling with homework). The story was devised to be the same for both boys and girls, except the main character in the story was changed in line with the child participant’s gender,

that is, girls were read the story about a female character (Agatha), boys were read the story about a male character (Archie). Unusual names were chosen for the characters, in order to ensure that the child did not relate the character to anyone that they knew. The character in both male and female versions was white.

After developing the book, the story was read to a small group (N=15) of children aged 4- to 7-years to test for understanding and whether the story was appropriate, prior to conducting the main study. The story was liked by all children and one child asked for it to be read again, suggesting that the story was set at an appropriate level.

Likert Scale. A movable Likert scale was developed for responses to the question: "How much can people do to stop stress?". A continuous line of Velcro was positioned horizontally on a laminated landscape A4 piece of paper. Below the line, the numbers one to four were written in large print, evenly distributed along the line. Above each number was a statement, as shown in Figure 7.2.

Figure 7.2. Likert Scale

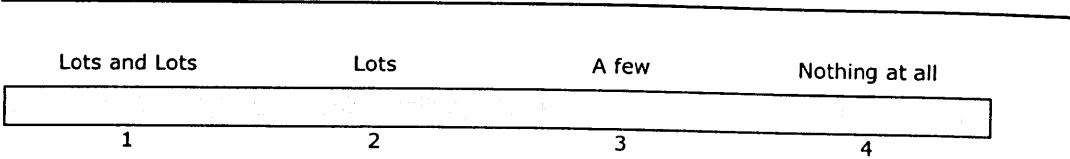


Figure 7.2. Likert scale developed for the study, used to answer question "How much do you think people can do to stop stress?". The Likert scale was produced on A4 laminated card. The grey line represents a strip of Velcro upon which a movable laminated arrow could be attached to.

7.3.5 Procedure

Children were asked to provide assent to taking part in the study in a classroom group (having gained informed consent from parents/guardians). Children were then selected by teachers to take part in the study. The researcher went to the classroom to collect the child, and then walked with him/her to a quiet room within the school where the interviews were held. The researcher talked with the child en-route to the room in order to develop a rapport with the child and enable him/her to begin to take part in everyday conversation before the interview began.

Children were told that the study would involve answering questions about stress for which there were no right or wrong answers. A tape recorder was used to record the interviews with the child's permission. Children were allowed to play with the recorder speaking in a whisper, normally and loudly, before the interviews commenced to establish what the player would record. Children were also told how to turn the recorder on and off and, if the child wanted to, they had a chance to practise doing this.

Children were initially asked whether they had ever heard of the word stress before, or if they had ever heard anybody say anything like, 'I've had a stressful day' or 'Ahhh! I feel stressed'. If the child responded that they had heard of stress, questions from the interview schedule were asked in order, using prompts and expanding on children's answers when required to clarify understanding. Children were encouraged to respond in detail, but care was taken not to deviate significantly from the interview schedule. Children who were not able to explain stress were read the story defining the concept. The subsequent questions from the interview schedule were then asked.

For the penultimate question, "How much can people do to stop stress?", children were asked to place a movable arrow on a Velcro line (Figure 7.2). The four points were described to the child as 'lots and lots of things people can do to stop stress', 'lots of things people can do to stop stress', 'a few things people can do to stop stress', 'nothing at all people can do to stop stress'. Responses for this item were noted by the researcher. Children who had responded that there was something that could be done to stop stress were then asked 'What sort of things can people do to stop stress', which was followed by a prompt 'Is there anything else that you or other people can do?' to ensure the fullest response possible.

Interviews were audio-recorded and transcribed verbatim. The length of the interviews varied in time from approximately 2 to 10 minutes.

7.3.6 Analysis

Content analysis was carried out, where appropriate, by first developing a coding scheme. It was initially intended to code the data into pre-defined categories (objective signs, non-observable signs, objective symptoms, non-observable symptoms) as in previous research (Bird & Podmore, 1990; Charman & Chandiramani, 1995), but it was apparent during the transcription process that

these categories did not fit the data. Therefore, the coding took a bottom up approach and used children's verbatim comments to determine the categories, rather than use any predetermined groupings.

7.4 Findings

As this was a preliminary, small-scale study, the analysis focused on describing and exploring children's accounts, in an attempt to identify factors which future, larger-scale, research should take into account. As most research questions involved categorical variables based on age, it was likely that assumptions of normality and heterogeneity of variance would be violated. Therefore, nonparametric tests were used in all analysis.

7.4.1 Developing the coding scheme

For some open-ended questions categories were easily created from children's responses. For example, for the question "How did you find out about stress?" responses were coded as: 1=parents/home, 2=teacher, 3=other adult, 4=can't remember, 5=from story.

For the remaining open-ended qualitative items (Figure 7.1, items 2, 3, 4, 7a, 7b and 9), the researcher developed a bottom-up coding scheme, defining manifest content before considering latent content. The text was broken down into component parts (units of analysis) by highlighting each section of text which represented one cohesive thought or topic. All 'in-vivo' codes, that is, the things that children had said, were written in a list using children's own words wherever possible. This list was studied by the researcher and her two supervisors (Heather Buchanan and Rebecca Knibb) individually. Each researcher grouped related concepts together. The researchers then met and, after discussion, agreed through consensus which items should be categorised (grouped together into categories with similar meanings). Each group (or higher-level category) was then given a meaningful latent code title: behavioural, emotional, physical/biological, cognitive and other. After reading and re-reading transcripts, these were coded for the presence or absence of identified concepts by the primary researcher. Coded data were then analysed using content analysis.

7.4.2 Children's understanding of stress

Most children (78%) had previously heard of the word stress. Although some children across all age groups did provide an appropriate definition of stress

without prompting, eleven younger children (aged 4-7) required the story to be read prior to defining stress. A further four children were read the story mid-way through the interview due to not responding to questions or responding that they did not know the answers to several questions.

The number of children able to provide an appropriate definition of stress (prior to being read the story) was significantly greater for older children (100% of 8- to 11-year olds) compared to younger children with a moderate association (54% of 4- to 7-year olds) [$\chi^2(1)=15.28$, $p<.001$, $\phi=.55$]. A definition was classed as appropriate if the child’s description fitted in with the definitions of stress outlined in Chapter 2 and may have included a number of factors or just one element. Children were classed as not providing a definition or providing an inappropriate definition if they were unable to answer questions or talked about an unrelated topic, for example, crocodiles (an actual response!). The numbers of children able to provide appropriate definitions are shown in Table 7.2. This table also shows a breakdown of the number of children whose descriptions included each of the main higher level latent categories identified through the coding process: behavioural (e.g., can’t do something), cognitive (e.g., can’t cope), emotional (e.g., feel worried), physical/biological (e.g., feel tense), and other elements (e.g., being stressed with oneself).

Table 7.2. Percentage and Number of Children Describing Each Element of Stress

Definition of stress	Age (years)							
	4-5		6-7		8-9		10-11	
	No.	%	No.	%	No.	%	No.	%
Appropriate definition provided	5	46.0	8	62.0	13	100	13	100
Definition included:								
Behavioural elements	1	9.1	3	23.1	0	0	4	30.8
Cognitive elements	0	0	2	15.4	5	38.5	1	7.7
Emotional elements	3	27.3	7	53.8	8	61.5	13	100
Physical/biological elements	1	9.1	1	7.7	5	38.5	6	46.2
Other elements	1	9.1	1	7.7	2	15.4	2	15.4

Note. 1. There were 13 participants in each condition except the 4- to 5-year old age group which had 11 participants, as two children were absent on the day of testing.
2. Children were able to mention multiple elements therefore overall percentages in each column may be greater than 100%.

As seen in Table 7.2, there were several empty or low frequency cells; therefore the data were collapsed into younger (aged 4-7) and older (aged 8-11) groups. However, despite collapsing cells, several expected low frequency cells remained. For this reason, cross tabulations could not be calculated for most elements and have only been reported when calculations were appropriate. Emotional factors were most frequently referred to across all age groups (Table 7.2). Older children (81% of 8- to 11-year olds) mentioned emotional components significantly more than younger children (42% of 4- to 7-year olds) although the association was relatively weak [$\chi^2(1)=8.10$, $p=.004$, $\phi=.40$]. The most common emotions, across all age groups, related to anger/annoyance ($n=22$). For example, *"Umm, I think it's something where you don't know what to do and you're getting really cross about it"* (Louise, female, age 7) and *"Like you get worried or you get sort of like mad is it? Worried and mad, umm and that's it really"* (Bobby, male, age 9). Children also frequently ($n=10$) mentioned tiredness in their definitions. For example, *"Umm, I think it's like when people like get tired, like when they're tired and then they get a bit annoyed with something. Or anything, like if they had to do lots of jobs then they could get stressed"* (Emma, female, age 10).

Older children (42% of 8- to 11-year olds) mentioned physical/biological components significantly more than younger children (8% of 4- to 7-year olds) although again the association was relatively weak [$\chi^2(1)=7.49$, $p=.006$, $\phi=.39$]. The most common physical/biological components were mentioning a red face ($n=4$) and being tense ($n=3$), as Mark describes: *"Umm, it's hard to explain how I'd actually like see -em but you can sort of see how they move and they are a bit like sort of all tense. They might be like sort of like all red in the face"* (Mark, male, age 11).

One older child also attempted to describe blood pressure. Jack said, *"Stress is when like people get really angry and annoyed and like [pause]. They like [get] really angry and get mad at people and then they like [pause]...They, is it their blood level or something rises?"* (Jack, male, age 10). As well as incorporating more domains, definitions also became more sophisticated with age. Older children tended to provide more multifaceted answers, for example, *"...like when you get really bothered about something and you get really stressed and not very happy and you want to do something but you can't"* (Isabella, female, age 10).

7.4.3 Overall knowledge

As described in the Design section (7.3.1), children were allocated a level of knowledge score (none, poor, limited, extensive) which was determined by their responses to all the questions asking about their understanding of stress (Figure 7.1, qu 1-4). As illustrated in Table 7.3 children’s level of knowledge generally increased with age. Although most children across all age groups had limited knowledge, there were no children in the upper two age groups (aged 8-11) with no knowledge and, in contrast, none of the youngest children (aged 4-5) with extensive knowledge. It was not possible to look at the relationship between these variables due to the small sample size.

Table 7.3. Percentage and Number of Children With Differing Levels of Knowledge

Level of knowledge	Age (years)							
	4-5		6-7		8-9		10-11	
	No.	%	No.	%	No.	%	No.	%
No knowledge	3	27.3	2	15.4	0	0	0	0
Poor knowledge	3	27.3	2	15.4	3	23.1	0	0
Limited knowledge	5	45.5	8	61.5	8	61.5	6	46.2
Extensive knowledge	0	0	1	7.7	2	15.4	7	53.8

Note. There were 13 participants in each condition except the 4- to 5-year old age group which had 11 participants, as two children were absent on the day of testing.

7.4.4 Experience of stress

Most children claimed to have both indirect (86%) and personal experience of stress (72%), both of which increased with age. Only one child reported that they had personal experience of stress without having also had indirect experience of stress. Indirect experience, that is, seeing someone stressed, came from a variety of sources: 57% of children had seen their mother stressed, 38% father/father figures⁵, 28% friends, 26% siblings, and 18% teachers.

Children reported personally feeling stressed for a variety of reasons. Overwhelmingly, the biggest stressor for children was arguments with siblings ($n=10$), other common reasons were feeling left out, being told off and school

⁵ All children referred to their mothers only in the context of a biological parent, but a number of children referred to fathers as step-fathers or 'not my real dad'. Although it is appreciated that children made this distinction, these were grouped together in a father/father figure category for ease.

work (all $n=4$). Older children were more likely to report schoolwork and others as stressors, whereas younger children made comments such as the following: *"I get stressed when my toys are not being very good"* (Sara, female, age 5) and *"I was stressed because I wanted my mum"* (Charlotte, female, age 5).

The feelings associated with personal stress were most commonly anger, feeling cross, annoyed, frustrated, or mad ($n=22$). Some children also reported physical consequences of being stressed. For example, three children reported getting hot, four children got a headache, one child reported feeling sick, and another felt tense. Cognitive and behavioural consequences of stress were also noted in children's descriptions of their personal experience of stress. For example, one child mentioned her inability to concentrate when stressed and another mentioned his inability to control his behaviour.

7.4.5 Knowledge and experience of stress

The relationship between children's level of knowledge and experience of stress was explored using Kendall's Tau (a non-parametric correlation used for small data sets with a large number of tied ranks (Field, 2000)). A two tailed test showed the correlation between knowledge and experience to be 0.39, which was significant ($p=.003$).

7.4.6 Learning about stress

Eight children believed that they first heard about stress from parents, two first heard about stress from his/her teacher and two first heard the word being said by other grown-ups. But the majority of children ($n=27$) could not remember when they first heard or learned about stress. The remaining children were not asked this question due to learning about it from the story.

7.4.7 Coping with stress

Using the four point Likert scale, most children (60%) reported that there were 'a few things' that could be done to prevent and/or manage stress. Younger children were more likely than older children (29% of 4- to 7-year olds; 4% of 8- to 11-year olds) to report that there was 'nothing at all' people could do to stop stress. It was not possible to explore this further statistically due to the small sample size.

Coping dimensions were grouped into the main categories of coping (Weiten & Lloyd, 2006). Table 7.4 shows the percentage and number of children who

mentioned each coping strategy across age groups. Each coping category is discussed in turn below.

Table 7.4. Percentage and Number of Children Who Mentioned Each Coping Strategy

Coping strategies	Age (years)							
	4-5		6-7		8-9		10-11	
	No.	%	No.	%	No.	%	No.	%
Appraisal Focused								
Distraction	3	33.3	1	12.5	1	8.3	5	38.5
Problem Focused								
Active Coping	3	33.3	3	37.5	4	33.3	6	46.2
Social Support	1	11.1	3	37.5	4	33.3	2	15.4
Solution Focussed	1	11.1	3	37.5	3	25.0	3	23.1
Emotion Focussed								
Emotional Expression	1	11.1	0	0	5	41.7	7	53.8
Emotional Regulation	0	0	0	0	5	41.7	3	23.1
Others								
Others (e.g., take tablets)	1	11.1	1	12.5	7	58.3	1	7.7

Note. There were 13 participants in each condition except the 4- to 5-year old age group which had 11 participants, as two children were absent on the day of testing.
2. Children were able to mention multiple elements therefore overall percentages in each column may be greater than 100%.

7.4.7.1 Appraisal focused coping

Some children across all age groups mentioned appraisal focused coping strategies, in particular distraction. Children identified reading a book, playing with toys, and listening to music, as some of the things that they may like to do to manage stress. For example, *"Umm, I usually just go into my room and do something like that, like I read my book to like calm me down a bit"* (Abigail, female, age 11).

7.4.7.2 Problem focused coping

The categories of active coping (e.g., say sorry), social support (e.g., be with other people) and solution focused coping (e.g., taking action to change the situation) were grouped together to form this category.

Active coping: Active coping, for example, talking or apologising to the person causing stress were mentioned across groups. Younger children talked about

ways that they could make other people who were stressed, feel better. For example, *"You can make them happy or do funny faces"* (Helena, female, age 5).

Social support: As the following quotes illustrate, some children across all age groups recognised people who they could go to for support: *"I would tell a teacher"* (Louisa-May, female, age 5). *"Yeah, you could tell somebody like your mum or your dad and just let them know how you are feeling and stuff"* (Colin, male, age 9).

Children also appreciated how others may be able to help in stressful situations:

"Tell somebody and they will like calm you down and - like like stuff like and - make you feel like comfy, like they could comfort you because if you're worried then you'd would like want somebody to be with you and stuff" (Brendan, male, age 9).

Solution focused: Children reported that they became stressed when seeing or hearing others arguing. For example, *"Umm, well I try to like umm, like if someone is having an argument then I try to like split it up cause well I just don't like hearing them really. Stopping them arguing makes me less stressed"* (Emma, female, age 10). Some children suggested intervening in arguments to stop his/her stress, as Lisa said, *"Urrrr, [pause] stop it...put your hands up and stay stop...say stop it, you're making [name] cry"* (Lisa, female, age 4).

3.9.5.3. Emotion focused coping

Emotional expression (e.g., crying) and emotional regulation (e.g., tell self to calm down) were grouped together to form this category.

Emotional expression: Older children were more likely to mention emotional expression as a coping strategy (50% of 8- to 11-year olds; 8% of 4- to 7-year olds). For example, *"I put my head in the pillow and start screaming. I lie on the floor and just bang my hands on the floor"* (Jane, female, age 8).

Some emotional expression strategies may be considered maladaptive, for instance: *"I go to the nearest wall and hit it and punch it a few times"* (James, male, age 11). And, *"Umm, I normally take it out on brother [laughs] and sort*

of like after he is sort of all crying and everything sort of like [laughs]. Or I just like wait until I calm down" (Kelvin, male, age 11).

Emotional regulation: Only children in the upper two age groups (42% of 8- to 9-year olds and 25% of 10- to 11-year olds) tried to regulate their emotions (e.g., tell self to calm down). For example,

"I kind of like just calm myself down a bit. I kind of just stop stamping around and kind of just tell myself to be calm and then when I'm calm then - I kind of then - I'm kind of calm again" (Latoya, age 11).

7.4.7.3 Other types of coping

Other factors were also noted which did not fall into any of the above coping strategies. For example, taking medications, *"Well my dad takes tablets and that's what I think [stops stress]. Tablets and just like for a few days stop doing that much work" (Poppy, female, age 8).*

7.5 Discussion

This cross-sectional study aimed to investigate children's conceptualisation of stress from 4- to 11-years of age and to examine the effects of both age and experience on children's understanding of stress. As in the previous chapter, the findings will be discussed in relation to observations made during the interviews and recommendations will be made for future studies in the programme of PhD research. It is again noted that the literature discussed in the introduction (and elsewhere), will also further inform the research programme, but the focus of this discussion will be on the method, rather than how the findings differ from key studies.

7.5.1 Children's understanding of stress

This study aimed to explore what children understood the word 'stress' to mean, whether they could tell when someone was stressed and what happened to an individual when they were stressed. Based on the previous study and previous research exploring children's understanding of health and illness, it was anticipated that some children aged 4-5 would have understanding. It was hypothesised that children's understanding would develop with increasing age, becoming more sophisticated, accurate, and multi-faceted. This hypothesis was supported in the present study.

Age differences were evident in children's understanding of stress. Older children provided more complex responses incorporating physical/biological domains; however, some of the youngest children still had a basic understanding of stress. This supports previous research exploring children's understanding of depression (Charman & Chandiramani, 1995) and is in conflict with Piaget's theory of cognitive development, which contends that young children cannot understand abstract concepts until late childhood.

7.5.2 Children's experience of stress

In relation to experience, the study aimed to identify whether children had both direct and indirect experience of stress. It was shown that many children have both levels of experience. It appeared that indirect experience precedes direct experience, as only one child reported that he/she had direct experience of stress without any indirect experience of stress. It would be interesting to explore this further in a larger sample.

Many children had personal experience of stress although the complexity of stressors increased with age. It is possible that children's increasing understanding of stress was related to their more extensive experience; however, due to the small sample size it was not possible to confirm this in this study. Further research to explore the role of experience on children's understanding of stress would be useful.

7.5.3 Knowledge and experience of stress

Although Kendall's Tau revealed that there was a significant relationship between knowledge and experience, it was not possible to consider the influence of age on this due to the small sample size and non-parametric data. It would be interesting to explore this relationship with a larger sample size.

7.5.4 Coping with stress

In the present study, coping with stress was measured using a four-point Likert scale. This part of the schedule differed from previous research on which the interview schedule was based (Bird & Podmore, 1990; Charman & Chandiramani, 1995). Previous researchers had used a two part questioning technique to ascertain children's responses. That is, they firstly asked children whether they thought that there were 'lots of things' or 'nothing' one could do to prevent illness. Children who replied that there were 'lots of things' were then asked whether they thought that there were 'mostly lots of things' or 'always lots of

things' and similarly 'mostly nothing' or 'always nothing'. These ratings were thought to be confusing and so, in the present study, the scale was split into the four points described previously.

The interactive scale was developed to make the question more child friendly. Indeed, this element was liked by most children and previous research indicates that children can use visual analogue scales (Ross & Ross, 1984). However, according to Piagetian theory, it is not until the age of 7 where children can think in concrete relative terms, that is, children younger than this age are believed to struggle to understand terms such as 'more' or 'less', 'little' and 'a lot'. It may be that the younger children in this study did not understand the terms used on the Likert scale. However, conducting the study suggests otherwise. Many children took time to consider their answer, often verbalising their decision making process, which indicated understanding of the question. For example, *"Hmm, I think there are a some things that people can do to stop stress, not nothing, I think it is a few things, a few things, I think it's number 3 because I can happily do that"* (Martha, female, age 5). However, it is possible that not all young children had this ability and this response may be skewed because of this. The study could have been improved by using a 'think aloud' procedure whereby children are asked to verbalise why they select a particular response.

Younger children were more likely than older children to respond that there was 'nothing' that people can do to prevent and/or manage stress. However, perhaps more worrying was the number of older children who identified, or described, maladaptive coping strategies to deal with stress. Where it was felt that this was an issue, the researcher dealt with this by informing the child (during the debriefing) about alternative ways of coping with stress. All alternatives were suggestions that other children had given about ways that they cope with stress including deep breathing, distraction, having a drink of water, and talking to others. It was also presented to the child that, if they felt that they wanted to hit something, hitting a pillow or other soft object may be a way of releasing feelings without hitting a wall or person.

It is appreciated that children's understanding and knowledge of stress and coping are not necessarily how stress and coping are experienced and dealt with in reality. Nevertheless, educating children about adaptive coping strategies may be beneficial for dealing with more complex stressors later in childhood and

would, perhaps, help to prevent children using the maladaptive strategies identified in the present study.

7.5.5 Learning about stress

As in the previous focus group study, children struggled to identify where they first heard about stress. It would appear that this information is difficult to elicit by questioning children. Some children who did learn about stress from the story (i.e. stated initially that they had not heard of stress) were able to describe seeing others who had been stressed and to talk about stress in some detail. This suggests that even children who have not heard other people directly refer to stress, do have limited understanding of the concept after being provided with an age-appropriate definition. However, informing children about stress was perhaps one of the reasons why so few schools wished to participate in the research. It may be easier to recruit a more representative sample if only children who have previously heard of stress are questioned. This leads to a discussion of the limitations of the research.

7.5.6 Strengths and limitations of the study

The above findings should be considered in light of a number of limitations of the study.

7.5.6.1 Setting

The study was conducted in two schools. This was positive as children were familiar with the environment and it was a setting in which they were used to being asked and responding to questions. However, it was possible that in this setting children felt less able to dissent to taking part in the research, as, on the whole, activities within the school environment are compulsory. The researcher did attempt to alleviate this by clearly telling children that they did not have to take part and could stop at any time, although it is possible that children felt less able to do this within the school setting.

Children from both schools were keen to take part in the research. It was much easier to control the noise in one school where a separate room was used for the interviews. The other interviews were held outside the classroom. It may be that this led to some differences in children's levels of attention and engagement with the interview, although this does seem unlikely, as the interview lengths were similar across schools. There were also no observable differences in

children's responses across the schools; however, due to the small sample from one school, it was not possible to make direct comparisons.

7.5.6.2 Participants

Although larger than the focus group study, the sample in the present study was again limited in size and consisted on the whole of White British children, in a relatively affluent area in the East Midlands. This limits the generalisability of the findings. Further research, including children from a variety of areas, may yield different results. It should be noted that the character in both male and female versions of the storybook was white. It may be necessary to develop a more multi-cultural resource if the participant sample is widened. Alternatively, it may be that an age, gender, and race neutral cartoon character, as illustrated in Figure 7.3 could be used. Rebok et al. (2001) found that children typically identified this character as being approximately the same age as them and being the same gender as them.

Figure 7.3. Age, Gender, and Race Neutral Character



Figure 7.3. A cartoon image of a person which has been found to be age, gender and race neutral. Reproduced from G, Rebok et al., 2001, *Quality of Life Research*, 10, p. 65. Copyright 2001 Kluwer Academic Publishers.

In the present study, teachers were asked to select children to take part in the research; this may have led to bias, with teachers selecting children that varied systematically, for example, selecting those they felt had experienced stress or those who had not. In hindsight, a more systematic method of sampling would have been better. The small sample size reduced the ability to conduct statistical analysis on the findings. This was an appropriate sample size for a preliminary study to assess the feasibility of the method, but a larger, more representative, sample would be useful in future research.

7.5.7 Methodological considerations

Although the story did help to engage the youngest children, some children were still shy and reluctant to talk. The researcher was able to work with these children eventually, but perhaps it may be easier to engage them if they were more familiar with the researcher before the interview took place. This was the main methodological implication to arise from this study, that it would be useful to develop a greater rapport with the children prior to conducting the interview. Christensen (2004) noted that researchers must be accepted by both children and adults before engaging in research. It has been noted that children are not usually asked their opinions by adults who are not known to them and having familiarity with the researcher, developing a rapport between researcher and child, may help the research process (Morrow & Richards, 1996) and improve the quality of the data (Punch, 2002). Gaining familiarity may be achieved by the researcher being present in the children's classroom for a period in advance of the task.

The interview format was useful because it enabled rich data to be gathered from older children, most children engaged in the interview and several commented to his/her teacher that they 'had fun' or 'liked' doing the interview. Prompts were useful as they allowed the researcher to follow up any issues that were interesting or clarify points that were not fully understood. Prompts were particularly useful to rephrase the question for the younger children. However, it has been documented that children generally assume that their first answer is wrong if a question is repeated by a person in a higher power (Greig et al., 2007); therefore, prompts were used only when necessary. Younger children required more prompting and as has been noted previously, benefitted from a less structured method of interviewing (Mayall, 2000) as young children's responses tended to be concise even with prompts. Wherever possible, the interviewer used the techniques of reflection and returning the child's words to encourage them to expand on their answers, as well as non-verbal utterances, such as 'umm' 'ahah' etc.

By using a semi-structured interview format, this may have led to an underestimation of children's understanding, as it may have been that young children were unable to verbalise their understanding. As highlighted by other researchers, it may be that children's full understanding is not tapped into using the open ended interview method (Smith & Williams, 2004). It may be that the repeated questioning is difficult for young children and encouraging children to

talk within more everyday conversation may help (Ireland & Holloway, 1996). Alternatively, a forced choice or more interactive method of assessment may yield more fruitful responses.

7.6 Overview of Chapter

In summary, a descriptive account of children's understanding and experience of stress, as elicited during a semi-structured interview, was provided and statistical analysis completed where appropriate. It was found that some children, across all age groups, had heard of the word stress, although this was again found to be limited in the younger children, who were generally shy and/or less willing to talk to the researcher. Children, even within age groups, are not homogenous and there were differences within age groups, however, there also appeared to be some general themes which seemed to occur at specific ages. The same pattern of change identified in the previous focus group study was found in this study, with a dramatic increase in understanding at the age of 6- to 7-years. The slightly larger sample enabled comparisons to be made between understanding and experience, highlighting that children with experience have more comprehensive explanations of stress; however, the small sample size limits the power of this analysis and needs to be replicated in a larger sample.

The semi-structured interview method was an effective way of eliciting information from children about their understanding and experience of stress. The interview could be improved by developing a greater rapport with the child before questioning them about stress, alternative ways to explore this would be useful. It is anticipated that this would be especially effective with the youngest age group of children, from whom it was most difficult to elude knowledge. Alternatively, it may be that a forced choice method of study helps the youngest children, by reducing the need for complex language. This led to the development of the final preliminary study.



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8. CHILDREN'S PERCEPTIONS OF STRESS: A FORCED CHOICE STUDY

8.1 Abstract

Background: Forced choice questioning reduces the linguistic demands for children taking part in research and may enable younger children to provide detailed responses. This final preliminary study aimed to explore and compare child and adult's knowledge of the consequences of stress and possible coping strategies using a forced choice method.

Method: A forced choice format was used to elicit information from 40 children (aged 6-11) and 88 adults about the emotional, biological, cognitive, and behavioural consequences of a specific stressor and coping strategies, in response to a stressful situation. Children were asked face-to-face; adults completed an online survey.

Findings: Partial support was found for the hypothesis that children's understanding of the consequences and ways of coping with stress would develop with increasing age. There were significant differences between all age groups of children and adult participants. Adults were significantly more likely to respond that there are many consequences/ways of coping than child participants. Even the youngest group of children were able to identify some ways of coping, particularly emotion focused coping.

Conclusion: Children's responses were different to adults' responses. This may indicate that even at 10- to 11-years of age children's understanding of stress has not fully developed, or it may be due to differences in methodologies used across child and adult participants. Findings should be interpreted with caution due to the methodological problems identified in the study.

8.2 Introduction

The forced choice method has been used in previous research exploring children's perspectives, particularly looking at children's understanding of biology (Hatano & Inagaki, 1999). It has also been used to explore children's understanding of disability (Smith & Williams, 2004). The method is considered useful because it reduces the linguistic demands on the child, that is, children do not have to generate complex explanations to answer questions (Williams & Binnie, 2002), merely respond using set criteria (e.g., through posting cards through a pretend letter box, sorting cards into piles, or pointing or holding up response cards).

From the first two preliminary studies a series of possible consequences of stress were developed, centred on the main themes which were identified from the previous study (behavioural, cognitive, emotional, and biological). Similarly, a number of coping strategies were listed which children had previously stated in the first two studies.

The aim of this forced choice study was to extend the previously conducted research and to explore children's understanding of stress further – particularly, in terms of the emotional, biological, cognitive, and behavioural consequences of stress and coping, in the context of their daily lives. It was hypothesised that children's understanding would develop with increasing age, with older children and adults identifying more possible consequences of stress and coping strategies than younger children.

✚

Based on the prior preliminary studies (Chapters 5 to 7) and previous research exploring children's understanding of health and illness (Chapter 3), it was anticipated that this method would enable younger children (aged 4-6) to demonstrate more detailed comprehension of stress than noted in the previous studies using open-ended questions. However, whilst conducting the research, it became evident that the repeated question and answer technique was not suitable for the younger children and the study was limited to children aged six and above.

8.3 Method

8.3.1 Design

This final preliminary cross-sectional quasi-experimental study aimed to investigate the effects of age on children's perceptions of stress and coping using a forced choice method, across three age groups of children and adults. The study was a 4 (age) x 2 (understanding of stress: consequences/coping) mixed design, with repeated measures on the final factor.

8.3.2 Participants

Forty children (16 males, 24 females), from a school in the East Midlands of England, volunteered to take part in the study. Further participant details are provided in Table 8.1. One participant (aged 6) was excluded from the study due to not understanding the control questions (see Section 8.3.5.1). Participants were from communities with predominantly White British backgrounds with English as their first language (School Ofsted Reports).

Children were selected by class teachers who were asked to ensure children with a range of academic abilities took part in the study.

Table 8.1. The Number and Age Ranges of Children in Forced Choice Study

Information	School year group		
	Year 1-2	Year 3-4	Year 5-6
Age range	6y 2m - 7y 11m	8y 5m – 9y 11m	10y 0m -11y 7m
No. of boys	5	5	3
No. of girls	8	8	11

Adult participants were recruited using a snowball sampling technique via an online social networking site. Network contacts were asked to forward a link to an online survey developed using the computer package ‘survey monkey’. The survey was completed, at least in part, by 91 adult participants over the period of one month; 80 participants completed all questions relating to the consequences of stress, and 82 participants completed all questions relating to coping. Demographic information was provided by 89 participants. There were 25 males and 64 females, aged between 20 and 70 years ($M=39.18$, $SD=12.72$). Seventy-two participants stated that they were White, White British or Caucasian, three were Pakistani, two were Scottish, and one participant described him/herself as each of the following: Afro-Caribbean, Asian, British Asian, British Pakistani, White Anglo-Saxon, White European, Indian, and Jewish. Three participants did not disclose their ethnicity. Twenty-five participants were educated to secondary school or college level, 63 were educated to University diploma level or above.

8.3.3 Ethics

As mentioned in the previous studies, a full exploration of the ethical considerations made in this study can be read in Chapter 4. For this particular study, the level of consent was set by the deputy headteacher (who dealt with research). The deputy headteacher was happy to act in *loco parentis* and did not feel it necessary to ask for parental consent, as the task was similar to tasks children were asked to do in the course of their school day. The level of consent obtained was therefore signed informed consent from the deputy headteacher acting in *loco parentis* and verbal assent from children, after an age-appropriate explanation of the project. No children withdrew from the study.

8.3.4 Materials

Children’s response cards. Three laminated A5 landscape size cards were made for the purpose of this study. The cards had the following words/symbols written on: 'yes' and a tick, 'no' and a cross, 'don't know' and a question mark (Figure 8.1). A 'don't know' option was included to allow children to respond more honestly, avoiding guesses (Punch, 2002).

Figure 8.1. Children’s Response Cards

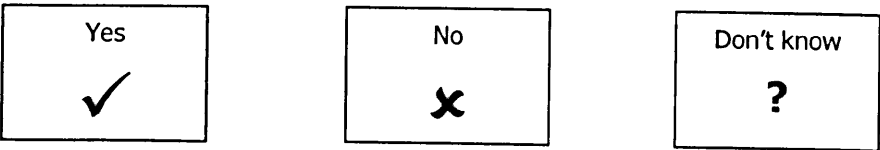


Figure 8.1. Cards that children held up or pointed to in response to each question. Each card was produced on A5 laminated paper.

The cards were available to help children remember the possible response categories and to simplify the verbal requirements of the task. The order of the cards was counterbalanced across, but not within, participants. That is, the yes/no/don't know cards were put in a particular order prior to the participant arriving and remained in this order for the duration of the child's questioning. The order of the cards was changed prior to the next child arriving and so on, until all six possible permutations had been used. The process then began at the start again and the order of counter-balancing was repeated.

Questions. Two lists of (a) the possible consequences of stress and (b) the coping strategies children may use (Figure 8.2) were generated directly from factors children mentioned in the previous studies. Children's own words were used in the descriptions, so that children in the present study were presented with terminology known to be used by children within the same age range. The items in brackets show how the questions were slightly reworded to make them more relevant for adult participants.

Figure 8.2. Stress Consequences and Coping Strategies

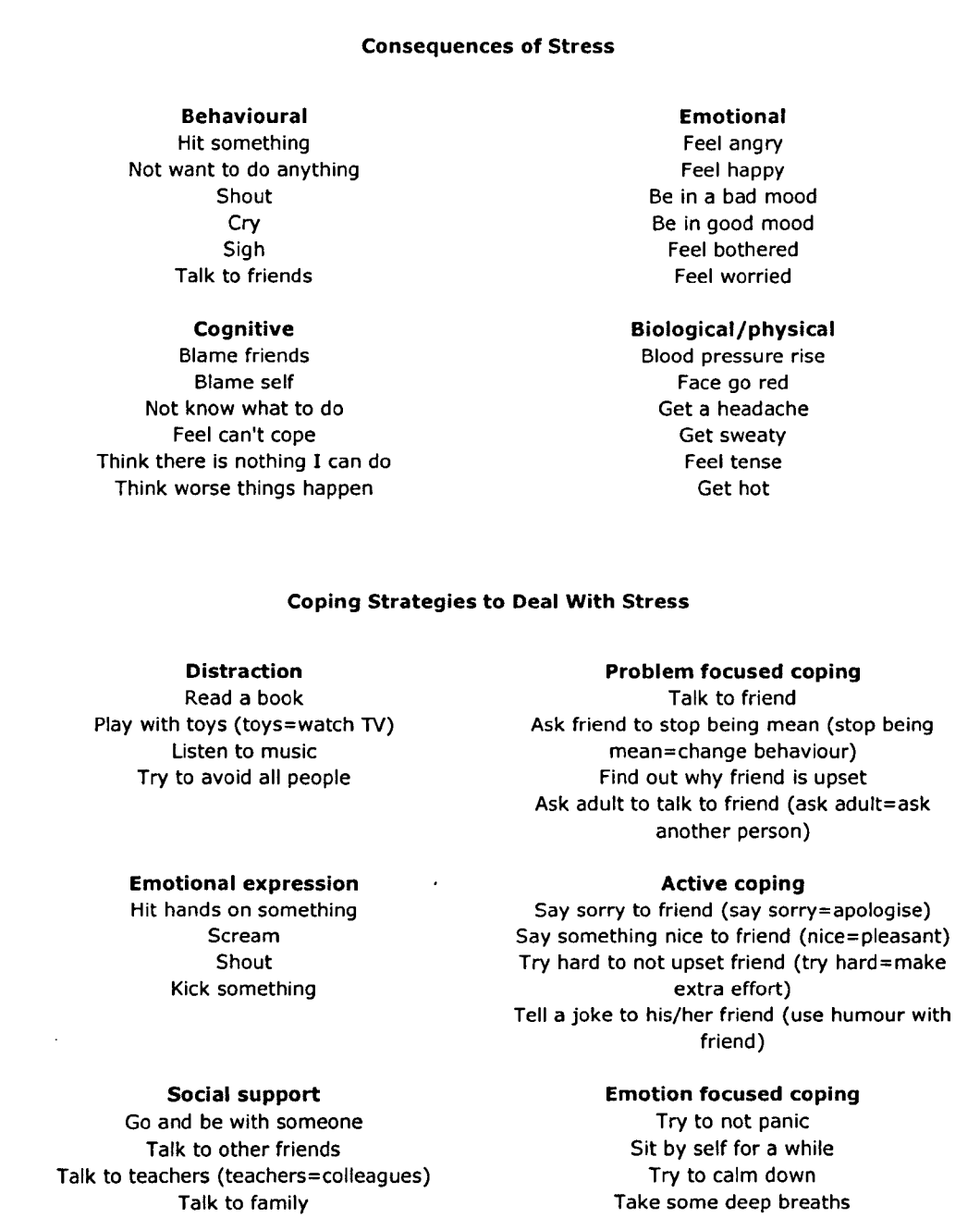


Figure 8.2. Consequences of stress and coping strategies children use to deal with stress identified in the previous focus group and interview studies. Brackets show where items were changed to be more appropriate for adult participants.

The items in Figures 8.2 were randomly ordered using a pseudo random number generator. That is, each consequence from Figure 8.2 was allocated a number (1-24) and an electronic 'n out of N' pseudo random number generator was used to randomly select cases, over ten trials. These selected cases were used to

produce ten lists, with the sequence of items randomly ordered. The same procedure was used to randomly allocate the coping strategies detailed in Figure 8.2.

8.3.5 Procedure

8.3.5.1 Child study

Children were initially informed about the study in a class group and asked to volunteer to take part by raising their hands. Teachers then selected volunteers from the children who raised their hands. The researcher accompanied each child to a particular location within the school (e.g., library, corridor etc.), depending on what was convenient for each teacher. During this period, the researcher chatted with the child about school (e.g., what they had been doing in class), to develop a rapport with the child. Once in the location, the child was invited to sit on a chair, the researcher sat next to the child.

Children were thanked for volunteering and notified that they could stop at any point by telling the researcher. In age appropriate language (being understandable to the youngest children, whilst not being patronising for older children), the child was informed that anonymity of both the child and school would be protected within any publications. Children were given an opportunity to ask questions and asked whether they still wanted to take part; their assent was assumed from this.

Children were informed that they were going to be told a short story, after which they would be asked questions to which there were no right or wrong answers. It was acknowledged that children from the same class may provide different responses, but each person would still be right. The response card system was explained to the child. He/she was told that the cards show the answers that they could give, 'yes', 'no', or 'don't know'. Children were informed that if they did not want to say the answer they could point to or hold the card up instead.

A gender specific vignette containing a short scenario was read to each participant. The gender of the child in the story corresponded with the gender of each participant (i.e. the researcher narrated a story to males about a boy and to females about a girl). The gender remained consistent throughout the interview. The male vignette was:

"Imagine a boy called Alex. He is the same age as you. Right now, Alex has just fallen out with his best friend. Alex has had an argument with his best friend and they no longer want to play with him. Alex now has no-one to play with and feels stressed".

The rest of this chapter will use the male example, but it should be noted that the same story was used for female participants, changing 'he' for 'she' etc. as appropriate.

Two probe control questions were asked after the vignette to check for lexical understanding and to assess whether the child understood the card response system. Firstly, each child was asked, *"Do you think that Alex has anyone to play with?"* If the child replied 'yes' he/she was re-read the vignette and asked the question again. If he/she answered with the appropriate response 'no', he/she was asked the next question: *"Do you think that Alex might feel stressed?"* The child was then asked an open ended question about why they think he may or may not feel stressed. If children gave an inappropriate response to these probe questions the interview was terminated at this point. If children were able to explain why the character may or may not feel stressed, the test questions were asked.

The test questions were asked in random order. They asked children about: (a) the potential behavioural, emotional, cognitive, and biological consequences of a specific stressor and (b) possible coping strategies which may be utilised after a specific stressor. The order of these two main questions was counterbalanced between participants (i.e. in each age group, one child received the consequence question followed by the coping strategies question; the next child received the coping strategies question followed by the consequence question). The researcher noted children's responses to each question on a grid designed for this study.

Children were thanked for their time, reminded of the purpose of the study, and asked if they had any questions. Children were rewarded with a sticker for taking part.

8.3.5.2 Adult study

Adult participants were asked to complete an online survey developed using the computer package 'survey monkey'. This survey consisted of a consent and

information page detailing background information to the study and providing the researcher's and supervisor's contact details. Participants could not begin the study without indicating that they had read the information sheet and gave their consent. Participants were then provided with the following statement *"Imagine Alex (a person of the same gender and age as you) has had an argument with a close friend. This has caused Alex to feel stressed"*.

The test questions (as described in the child study) were then asked in random order. Participants were asked to mark whether they thought each statement would or would not occur, again they were also given a 'don't know' option.

8.3.6 Analysis

Responses were inputted into SPSS. Possible response options: 'yes' (i.e. may occur), 'no' (i.e. will not occur) and 'don't know' (i.e. does not understand the question or were unsure of the answer), were allocated number codes (1-3) and descriptive statistics, t-tests and ANOVAs were conducted as appropriate.

8.4 Findings

Preliminary analysis revealed that there were no significant gender differences for child participants, nor were there any differences across the order the two main questions were asked in. In adult participants, females reported slightly more biological elements ($M=5.82$, $SD=0.43$) than males ($M=5.25$, $SD=1.26$), an independent samples t-test revealed that this difference was significant ($t(78)=3.03$, $p=.003$). There were no other gender differences, therefore male and female data were combined.

8.4.1 Consequences of stress

Firstly, the number and percentage of participants who responded 'yes', that each consequence may occur, was considered (Table 8.2).

As is evident from Table 8.2, there were some categories (e.g., hit something, blame friends, feel bothered, blood pressure rise, and sweat) which showed an increase in the percentage of participants that responded that the consequence would occur, increasing with age. However, there was not a clear pattern in most categories.

'Be in a good mood' and 'feel happy' were included as control items, to check that all items were not being answered in the same way. Younger children (aged 6-7) more frequently reported that the character may feel happy than the older age groups of children. Although a large number of 10- to 11-year old children reported that the character would be in a good mood. Some adults ($n=5$) also reported that the character may feel happy.

Table 8.2. Percentage and Number of Participants Who Believed Each Consequence of Stress Would Occur

Consequence	Age (years)							
	6-7 ($n=12$)		8-9 ($n=13$)		10-11 ($n=14$)		Adult ($n=80$)	
	No.	%	No.	%	No.	%	No.	%
Behavioural								
Hit something	3	25.0	6	46.2	12	85.7	67	83.8
Not want to do anything	3	25.0	4	30.8	2	14.3	76	95.0
Shout	9	75.0	12	92.3	11	78.6	78	97.5
Cry	8	66.7	7	53.8	9	64.3	77	96.2
Sigh	10	83.3	7	53.8	11	78.6	73	91.2
Talk to friends	9	75.0	5	38.5	7	50.0	77	96.2
Cognitive								
Blame friend	4	33.3	5	38.5	8	57.1	75	93.8
Blame self	4	33.3	4	30.8	13	92.9	76	95.0
Not know what to do	8	66.7	9	69.2	14	100	77	96.2
Feel can't cope	6	50.0	6	46.2	13	92.9	73	91.2
Think nothing can do	8	66.7	4	30.8	4	28.6	68	85.0
Think worse things happen	12	100	8	61.5	10	71.4	58	72.5
Emotional								
Feel angry	12	100	11	84.6	12	85.7	79	98.8
Feel happy	2	16.7	1	7.7	0	0	5	6.2
Be in bad mood	12	100	12	92.3	10	71.4	80	100
Be in good mood	0	0	1	7.7	7	50	5	6.2
Feel bothered	8	66.7	10	76.9	12	85.7	78	97.5
Feel worried	11	91.7	10	76.9	14	100	79	98.8
Biological								
Blood pressure rise	7	58.3	10	76.9	11	78.6	77	96.2
Face go red	10	83.3	9	69.2	11	78.6	75	93.8
Get a headache	6	50	5	38.5	8	57.1	77	96.2
Get sweaty	7	58.3	9	69.2	11	78.6	72	90.0
Feel tense	7	58.3	10	76.9	8	57.1	80	100
Get hot	7	58.3	7	53.8	10	71.4	71	88.8

Participants were given a score for each domain (behavioural, emotional, cognitive, biological) based on the total number of affirmative responses (i.e. 'yes', believed it may occur) they gave to the questions in that category. There was a maximum score of 6 in all domains apart from 'emotional', where the items representing being happy/in a good mood were excluded, making a maximum of 4 in this category. The mean scores are shown in Table 8.3.

As seen in Table 8.3, adult participants generally reported that most elements may occur, with the mean scores across all dimensions for the adult participants being high. In contrast, children in the 8- to 9-year old age group were least likely to report that elements may occur, with the lowest ratings across most dimensions being in the 8- to 9-year old age group. Only the biological category showed an increase in the mean number of ratings with increasing age.

Participants in the different age groups differed significantly in the number of behavioural factors ($F(3,115)=56.89$, $p<.01$), biological factors ($F(3,115)=21.23$, $p<.01$), and cognitive factors ($F(3,115)=32.21$, $p<.01$) that they believed may occur. *Post hoc* Games Howell tests (used because of the uneven sample sizes) showed that children's responses in each age group were significantly lower than adult responses. In addition, 8- to 9-year old children reported significantly fewer cognitive factors may occur than 10- to 11-year old children. The differences across groups in the emotional factors were not significant.

Adults were also asked an open ended question about any other consequences of stress that they felt the character may experience. Three participants provided comments. One participant mentioned ruminating over the events: "*She will replay the argument in their [her] head over and over*" (female, age 28). Another proposed an active, solution focused coping strategy, commenting that the character would: "*Send a text to say she's sorry there has been an argument and suggest discussing things calmly*" (female, age 62). The final male participant, perhaps rather jokingly, or using humour as a coping strategy, wrote, "*Alex will say 'shut up fool' like Mr T*" (male, age 30). All these additional comments can be related to coping strategies; the second focus of this study, which will now be considered.

Table 8.3. Mean and Standard Deviations of Total Number of Affirmative Responses (i.e. Believed May Occur) In Each Consequence of Stress and Coping Domain Category

Category	Age group											
	Aged 6-7 (n=12)			Aged 8-9 (n=13)			Aged 10-11 (n=14)			Adult (n=80)		
	M	SD	CI	M	SD	CI	M	SD	CI	M	SD	CI
Consequence												
Behavioural	3.58	0.79	3.08-4.09	2.92	1.04	2.30-3.55	3.71	1.33	2.95-4.48	5.60	0.76	5.43-5.77
Cognitive	3.50	1.17	2.76-4.24	2.77	1.30	1.98-3.56	4.43	0.94	3.89-4.97	5.35	0.96	5.14-5.56
Emotional	3.58	0.52	3.26-3.91	3.31	0.95	2.74-3.88	3.43	0.76	2.99-3.87	3.95	0.22	3.90-4.00
Biological	3.67	1.23	2.88-4.45	3.85	1.77	2.78-4.92	4.21	1.72	3.22-5.21	5.65	0.81	5.44-5.83
Coping domain												
Distraction/Avoidance	2.17	0.72	1.71-2.62	1.92	1.12	1.25-2.60	1.85	1.10	1.22-2.49	2.78	1.22	2.51-3.05
Emotional Expression	0.75	0.87	0.20-1.30	1.15	1.46	0.27-2.04	1.71	1.44	0.88-2.54	3.05	1.47	2.73-3.37
Social Support	3.42	0.67	2.99-3.84	2.54	0.88	2.01-3.07	3.14	1.03	2.55-3.74	3.61	0.83	3.43-3.79
Problem Focused	2.92	1.38	2.04-3.79	2.77	1.48	1.87-3.66	2.43	1.28	1.69-3.17	3.45	0.80	3.27-3.63
Active Coping	2.83	0.83	2.30-3.36	3.08	1.12	2.40-3.75	3.00	1.24	2.28-3.72	3.45	0.97	3.28-2.72
Emotion Focused	3.67	1.23	3.73-4.10	3.85	1.77	2.99-3.93	4.21	1.72	3.44-3.99	5.65	0.81	3.65-3.91

8.4.2 Coping with stress

As with the consequences of stress, the number and percentage of participants who responded 'yes', that the character may display each coping strategy was considered. Table 8.4 shows the responses from participants in each age group for the possible coping strategies.

Table 8.4. Percentage and Number of Participants Who Believed the Character May Display Each Coping Strategy

Coping strategy	Age group							
	Aged 4-7 (n=12)		Aged 8-9 (n=13)		Aged 10-11 (n=14)		Adult (n=80)	
	No.	%	No.	%	No.	%	No.	%
Distraction/avoidance								
Read a book	5	41.7	9	69.2	3	21.4	45	54.9
Play with toys/watch TV	11	91.7	8	61.5	9	64.3	59	72.0
Listen to music	7	58.3	5	38.5	7	50.0	74	90.2
Try to avoid all people	3	25.0	3	23.1	7	50.0	50	61.0
Emotional expression								
Hit hands on something	2	16.7	4	30.8	6	42.9	61	74.4
Scream	2	16.7	2	15.4	7	50.0	61	74.4
Shout	3	25.0	5	38.5	6	42.9	66	80.5
Kick something	2	16.7	4	30.8	5	35.7	62	75.6
Social support								
Go and be with someone	8	66.7	7	53.8	11	78.6	70	85.4
Talk to other friends	10	83.3	9	69.2	13	92.9	78	95.1
Talk to teachers/colleagues	12	100	7	53.8	10	71.4	71	86.6
Talk to family	11	91.7	10	76.9	10	71.4	77	93.9
Problem focused coping								
Talk to friend	11	91.7	9	69.2	9	64.3	76	92.7
Ask friend to stop change behaviour	7	58.3	9	69.2	8	57.1	59	72.0
Find out why friend is upset	7	58.3	9	69.2	8	57.1	74	90.2
Ask another person to talk to friend	10	83.3	9	69.2	9	64.3	74	90.2
Active coping								
Apologise to friend	9	75.0	10	76.9	12	85.7	79	96.3
Say something pleasant to friend	10	83.3	12	92.3	10	71.4	68	82.9
Make extra effort to not upset friend	11	91.7	9	69.2	13	92.9	71	86.6
Use humour with friend	3	25.0	9	69.2	7	50.0	65	79.3
Emotion focused coping								
Try to not panic	12	100	10	76.9	12	85.7	73	89.0
Sit by self for a while	12	100	10	76.9	13	92.9	81	98.8
Try to calm down	11	91.7	13	100	14	100	79	96.3
Take some deep breaths	12	100	12	92.3	13	92.9	77	93.9

Emotion focused coping strategies were frequently reported as possibly happening by all participants. Emotional expression was the only category which increased in frequency, on the whole, with increasing age. Patterns were hard to identify in other categories.

Participants were given a score for each coping domain based on the total number of affirmative responses (i.e. yes, believed it may occur) they gave to the questions in that category. There was a maximum score of 4 in all domains. The mean scores are shown in Table 8.3.

As previously noted in the 'Consequences of Stress' section (Section 8.4.1), adult participants generally reported that most elements may occur, with the mean scores across all dimensions in the adult participants' condition being higher than in any of the child conditions. Only the emotional expression and emotion focused categories showed an increase in the number of ratings with increasing age.

There were significant differences in the number of coping strategies participants in the different age groups mentioned in each of the following coping domains: distraction/avoidance ($F(3,117)=4.45$, $p=.005$), emotional expression ($F(3,117)=15.41$, $p<.01$), social support ($F(3,117)=6.61$, $p<.001$), and problem focused ($F(3,117)=5.44$, $p=.002$). *Post hoc* Games Howell tests showed that 10- to 11-year old children believed fewer distraction coping strategies may occur than adults. Children in all age groups believed fewer emotional expression coping strategies may occur than adults. In terms of social support, the youngest age group of children (6- to 7-year olds) were more likely to consider social support strategies would occur than 8- to 9-year old children. 8- to 9-year old children were less likely to think social support would occur than adults.

Again, adult participants were asked an open ended question about any additional coping strategies that the character may use. One participant commented upon the individual nature of stress and coping responses, *"Really all of these might be done by a person under stress as this is a very personal response and will be different for everyone"* (female, age 28). Two other participants mentioned additional ways to unwind, which may be classed as distraction/avoidance: *"Go for a long walk"* (female, age 62) and *"Have a shower or bath to try and calm down and feel refreshed"* (female, age 28).

8.5 Discussion

As in the previous chapters, the findings will be discussed here in relation to observations made during the research process and the focus of this discussion will be on the method, rather than how the findings differ from key studies.

This study aimed to explore whether children's understanding of stress, particularly in terms of the emotional, biological, cognitive, and behavioural consequences of stress differed across age groups. It was hypothesised that children's understanding would develop with increasing age, with older children and adults identifying more consequences than younger children. This hypothesis only received partial support, as only some categories showed an increase in the number of responses with increasing age, including physiological/biological consequences (e.g., increasing blood pressure and perspiring) and maladaptive coping strategies (e.g., to hit something). Importantly, approximately 50% of the youngest age group of children (6- to 7-year olds) were able to identify that physiological factors may occur as a consequence of stress; much younger than noted in the open ended questions in the previous preliminary studies. It would be interesting to see if younger children (below 6-years) were also able to identify these factors using this forced choice method (see study limitations Section 8.5.1).

This study extended the previously reported research (Chapters 6 and 7) to include adult participants. It was found that there were significant differences between all age groups of children and adult participants. Adults were much more likely to respond that many consequences may occur than child participants across age groups. This may indicate that, even in the oldest age group of children in the present study, at 10- to 11-years of age children's understanding of stress is still not fully developed. It may, therefore, be interesting to explore understanding of stress during adolescence in further research. An alternative explanation is that the differences may have been because of the different ways participants were asked to respond to questions – face-to-face as opposed to a survey method. Using a survey would be inappropriate with young children due to their lack of reading ability, therefore asking adults face-to-face may enable more accurate comparisons to be made. However, the logistics of recruiting adults to take part in a short interview on stress may be difficult and limit the number of participants. Therefore, a pragmatic decision was made to recruit participants online.

'Be in a good mood' and 'feel happy' were included as control items to ensure that all responses were not affirmative, but also to further explore the idea that was identified in the focus group study that young children associate happiness with stress. Partial support was found that young children are more likely to associate happiness and being in a good mood with stress, however, five adults also reported this. Looking at the raw data, this did not appear to be because of a response bias (where all questions were answered affirmatively), as only one participant responded in the same way throughout the survey. In terms of Piagetian theory, Piaget noted that not all adults reached the highest level of development (see Chapter 3) and it may be that some adults' perceptions remain relatively child-like. It would be interesting, in future research, to further compare adults' understanding of stress with children's understanding.

The present study was able to extend the research from the previous chapters, which measured coping on a Likert scale and using an open ended question. From these previous studies, it was not clear how perceptions of coping changed with age across the different domains. It was hypothesised that older children would acknowledge that more coping strategies were possible than younger children, but that even young children may have some knowledge of coping strategies.

The findings from the study have shown that children were aware of certain coping strategies even in the youngest age group of children, in particular emotion focused coping strategies: trying not to panic, sitting alone, trying to calm down, and taking deep breaths. This is positive, as it shows that even young children are aware of effective ways of dealing with stress. Awareness of coping through emotional expression: hitting hands on something, screaming, shouting, and kicking did appear to increase with increasing age. Although adults did report more elements may occur across all dimensions than children, it was difficult to determine patterns in the other coping dimensions. Again, this may be because of differences in understanding or because of the different methods used to collect data and the differing response categories between adult and child participants.

Additionally, in hindsight, it may have been more appropriate in the child study to represent the yes, no, options with an alternative picture (e.g., thumbs up/thumbs down), rather than a tick or a cross which may imply right or wrong

answers, particularly within a school environment. This is one of the study limitations, further consideration of which will now be provided.

8.5.1 Strengths and limitations of the study

Based on the preceding studies and previous research exploring children's understanding of health and illness, it was anticipated that the forced choice method would enable younger children (aged 4-6) to demonstrate more detailed comprehension of stress than noted in the previous studies using open-ended questions. However, whilst conducting the research, there were a number of methodological problems. It became evident that this particular study design was problematic across all age groups of children, with younger children being easily distracted from the task and older children being confined by the forced choice response.

The validity of the measure, that is, whether the questions actually assessed children's understanding of stress, was questioned by the researcher. It was apparent during the interview process that the measure lacked face validity for the younger (6- to 7-year old) children who did not engage in the process and appeared to provide random responses and/or be distracted during testing. In contrast, the older children seemed constrained by the forced choice response format constantly wanting to clarify, for example, that 'in some cases it may be yes, in others it may be no', or 'she might feel that but it depends.' The above findings must be considered in light of this major limitation in addition to other methodological weaknesses, including the use of vignettes and pictures, which will now be discussed.

In order to have the same example used across all children, a vignette was used which asked the child participants to imagine another child in a particular situation. The vignette attempted to provide a 'real life' concrete example that children could understand and may have experienced. However, the question asked the child to think about a situation that had not actually happened; it may be that this question itself was too difficult for younger children to comprehend and may be the reason why they did not engage in the research process. It may have been more appropriate to ask children about themselves, as younger children are known to be ego-centric, that is, not to be able to understand things from the perspective of others, although this may have also caused problems as not all children have been in this situation and felt stressed. Additionally, as expressed by many older children, the consequences and coping strategies used

are individual to the person and may differ across situations and times. An alternative may have been to use a more concrete example, for example, a picture or video of a child/dolls in this situation, this may have engaged younger children in the research process for longer.

Some previous forced choice studies have shown children a picture of the child mentioned in the vignette. Although it was debated whether to use a picture during the vignette in the present study, it was not felt necessary to include a picture to maintain the child's attention as the vignettes were relatively simple and short. However, given that it was difficult to maintain children's attention, to the point where the researcher felt it was impractical to ask the youngest age group of children to take part, any way of maintaining children's attention for longer may have been worthwhile. Alternatively another forced choice method such as a card sorting task may have been more appropriate.

8.6 Overview of Chapter

In summary, this study used a forced choice method to investigate children's understanding of the consequences of stress and possible coping strategies for dealing with stress. It was found that there was partial support for the hypothesis that the number of consequences and coping strategies that children reported would rise with increasing age. Although some patterns emerged, on the whole, it was not possible to identify how perceptions of stress and coping differed across age groups. It was, however, highlighted that child and adult perceptions of the consequences and coping strategies for stress differed.

However, these findings need to be evaluated in light of the methodological limitations of the study. It was not possible to elicit feedback from adult participants due to the nature of data collection via an online survey, but as one adult commented, *"All of these might be done by a person under stress as this is a very personal response and will be different for everyone"*. This reflects one of the problems of using a forced choice method with the topic of stress, as there are a huge range of factors associated with stress and coping, which differ within and across individuals (Lazarus & Folkman, 1984). As presented in the Chapter 2, even highly respected scientists and researchers cannot agree on how stress should be conceptualised. It may be that using an alternative forced choice method may produce clearer findings. Nevertheless, it is likely that, whatever method is selected, it would be necessary to focus on specific aspects of stress

and/or coping to avoid the repetitiveness of questioning and children losing interest during the research.

Overall, the forced choice method was the least successful method of the three preliminary studies; further evaluation of the methods is made in the next chapter, which presents an overall discussion of these three preliminary studies.

9. DISCUSSION OF PRELIMINARY RESEARCH STUDIES

This second section of the thesis (Chapters 5 to present) provided a brief introduction to the area of children's understanding of stress and presented three small scale preliminary studies in a scientific paper format. These three studies aimed to provide an initial exploration of how children understand, experience, and learn to cope with stress in the context of their daily lives. This discussion section firstly synthesises the findings and evaluates the methodologies across these preliminary studies, in order to gain converging evidence from the different methods and identify patterns within this evidence. Focussing separately on the topics of 1) understanding, 2) experience and 3) coping, these findings will be evaluated in the light of previous literature, with recommendations made for future research. Aspects of theory will be reflected in the observations found across these three studies, however, a discussion of the relevance of these findings to theory will wait until the findings of the main studies are presented in Part Three of this thesis. This is to allow an inductive approach to be taken in the main studies. A second aim of the preliminary research was to evaluate the utility and appropriateness of each of the methodologies employed, to support selection and modifications of methods for the main research studies. Therefore, this section will summarise methodological evaluations across the preliminary studies and consider some of the overarching issues (such as setting, context, and ethical issues) identified in the research so far and suggest ways to address these issues in subsequent research.

9.1 Summary of Findings

The preliminary research has demonstrated some consensus in children's understanding of stress. In particular, it seems that awareness of the emotional consequences of stress develops first, since children of all ages, across all three studies, talked about the emotional consequences of stress during focus groups and interviews and there was a lack of significant differences in the emotional category in the forced choice study. This is in line with research exploring children's understanding of emotions; children are able to explain basic emotions between 3- and 5-years of age (Vinden, 1999) and more complex emotions such as disgust develop towards the end of this age range (Widen & Russell, 2003). In contrast, understanding of physiological or biological consequences of stress

developed with increasing age, this was demonstrated in the forced choice and interview studies and was reflected by the lack of discussion in this area in the focus groups with younger children. This fits into the naïve theory of biology, which suggests that younger children hold facts about biological knowledge whereas older children have a more integrated framework of knowledge. It would be useful to conduct larger scale research to explore whether these findings are replicated in a larger, more representative sample of children (see limitations Section 9.4).

With regards to experience, stress was clearly part of life for some of the children, both directly and indirectly, and this was reflected in both of the first two studies. Over 85% of children across studies were able to describe seeing other people who had been stressed and nearly 70% reflected upon personal experience of stress across age conditions. The ability of children to describe other people who have been stressed supports research which has shown that children are able to explain their own emotions, as well as others' emotions within close relationships (Dunn & Hughes, 1998).

Children's personal experience of stress, may not have always be in terms of factors that adults would deem as stressful, as seen in the quote from the interview study "*I get stressed when my toys are not being very good*" (Sara, female, age 5). It appears that childhood stressors have unique meanings within the child's frame of reference. This may be one reason why previous research, which has shown that factors that children perceive as stressful differ from an adult perspective of childhood stressors (Kosub & Kosub, 1982; Ryan-Wenger, Sharrer, & Campbell, 2005) and supports the idea that proxy measures of children's stress may not adequately reflect childhood stressors. Thus, it may be more important for parents, carers, teachers and healthcare professionals to identify and respond to stress behaviour in young children, rather than attempt to evaluate the number of stressors adults perceive the child encounters.

Experience of stress did appear to increase with age in both the focus group and interview studies. Some older children were able to provide a rich account of stress, to outline their experiences of stress, and suggest ways in which they or others cope with stress. This supports previous research (e.g., Brobeck, Marklund, Haraldsson, & Berntsson, 2007; Dibrell & Yamamoto, 1988; Jacobson, 1994; Lewis, Siegel, & Lewis, 1984; Ryan-Wenger et al., 2005; Sorensen, 1993) which has shown that older children (aged 7+) can talk about stress, worries and

concerns. It may be that cumulative experience of stress, rather than cognitive development, accounts for the age differences found. Alternatively, it may be that younger children do experience stress, but are not able to describe or explain this. It would be interesting in future research to further explore the relationship between experience and knowledge of stress.

In terms of coping, younger children in the focus groups had difficulty generating ideas about how people could cope with stress. The use of the Likert scale in the interview study corroborated this finding with younger children being more likely to believe that there is 'nothing' people can do to prevent and/or manage stress. The small number of participants in the studies limits the generalisability of the findings and reduces the statistical power of the tests. Therefore, larger sample sizes will be employed in the main studies. The forced choice method demonstrated an age-related increase in the number of coping strategies endorsed by the children. However, children endorsed significantly fewer strategies than adults, that is, adults were significantly more likely to respond that many consequences or ways of coping may occur than child participants. Comparing children's understanding with adults' understanding was interesting and it would be useful to do this again in future research.

In summary, combining the findings using the three different methods, it is evident that some patterns are emerging and these have potential implications for theory, research, parenting, and practice. It is important to evaluate the different methods used and consider how each may have influenced the nature and quality of findings across the studies.

9.2 Comparing Methods

The focus group method presented a relatively fast way of gaining information, to establish whether the broad topic areas were relevant, and to gain an overview of children's perceptions. The focus group study allowed materials to be developed for use in the subsequent interview study, which presented children's own examples and experiences and copied the language used by children. The focus group also acted as a pilot where the questions could be developed and refined before being asked in the interview situation. In terms of demands placed on the child, it was felt that the focus group interviews were less demanding than one-on-one interviews. For all these reasons, the focus group method was positive. However, there were also limitations in this method. At times the group was more like several individual interviews being

held in a group setting and did not replicate the small group conversations that children have regularly, in contrast to what has been noted previously (Mauthner, 1997). In addition, issues arose during the groups and it became clear that asking children about a sensitive topic in a group situation, may not be appropriate for all children and, therefore, a one-on-one method was more suitable.

Semi-structured interviews seemed to surpass the other methods and drew upon children's understanding of stress more effectively. However, younger children were more hesitant about taking part in the individual interviews; this may have been because of the demands of the interview process. The interview method depends on the verbal-linguistic skills of the child taking part. It is possible that some of the younger children did not understand the questions, as illustrated by the greater need to use prompts with younger children. However, it may also be that the younger children were less likely to have experienced interviews previously and lacked confidence to answer questions in this situation. Alternatively, it may be that younger children take longer to talk to strangers than older children, who are more used to talking to adults in a variety of settings. It may be that an activity developed to create a rapport with the younger children, or a more participatory research method, may increase children's confidence and promote greater responses from younger children using the semi-structured interview method.

Forced choice was the least successful of the three methods piloted. Older children found the forced choice too difficult, often naming factors that would influence their responses, while younger children found it difficult to engage with the repetitive nature of the questions. A decision was, therefore, made to abandon the method, before questioning the youngest age group of children in the other two studies. It is, therefore, not possible to tell whether reducing the linguistic elements of the task would facilitate the youngest children to express their understanding of stress. Although interesting findings did begin to emerge from the forced choice study, the broad nature of stress and coping make using this method difficult. One of the main problems with this task was the repetitive nature of the questioning. It is possible that the method could have been improved by cutting out some of the repetitiveness or using an alternative method (e.g., a card sorting task).

9.3 Additional Factors Which May Have Influenced the Studies

9.3.1 Context

When comparing methodologies, it is also worth comparing the context variables that also changed, with the differing methods. For example, it may be that the researcher being more comfortable in the individual interviews made the children more relaxed and more likely to talk than in the focus groups, where the researcher had to deal with a greater number of children and greater time constraints. Although it was not felt that this overly influenced the three studies discussed here, it is worth considering in the evaluation of methods, as is engaging children in the research.

9.3.2 Engagement

In all three studies most children were engaged in the research and were keen to take part, although perhaps the younger children were less enthusiastic. The youngest age groups of children (under 7-years) required more support than older children across all studies. Overall, younger children lacked confidence in talking with the researcher. They were not necessarily more hesitant to take part, but the researcher had to work harder to develop a rapport with the child to encourage him/her to talk. This may have influenced the findings. It would be useful to develop a rapport with all children prior to further research, in order to eliminate these potential differences across age groups.

9.3.3 Setting

It was noted, in addition to the age of the child influencing the research, the setting also influenced children's responses, and behaviour. This has been noted previously (e.g., Solberg, 1996). Both the out-of-school club and the school setting had advantages and disadvantages. Children were less likely to volunteer within the youth clubs than within schools, perhaps due to the more exciting competing activities from which the noise levels were difficult to control. Within the school, children were clearly more used to answering questions and seemed more prepared for the research, however, they may have felt more obliged to take part, making issues of assent more problematic. Overall, it was concluded that the school setting was more conducive to conducting the research, but that issues of assent must be considered.

Neither setting was easy to gain access to and gatekeepers presented barriers to accessing children, as identified previously (Butler & Williamson, 1994). Problems in gaining access to children in schools did influence the design

of the study. Samples were smaller than initially planned due to the few headteachers that were willing for their schools to take part in the research. Even when headteachers had provided consent to go into the schools, gaining access to some classes was problematic, as class teachers did not wish to be disturbed or know or want to take part in the research. Alternative ways to present the research within the school environment, in order to gain support from all teachers, or at least to provide a way in which teachers could express their concerns, would be useful.

9.3.4 Child-friendly research

All of the studies presented in this section were based on the premise that children are capable of producing data in their own right. Positively, most of the questions in the focus group and interview studies were open-ended, enabling children to provide free responses, where they could express their opinions, knowledge, and beliefs openly. However, in Chapter 5, it was noted that some researchers have questioned whether children's accounts can be believed (Mayall, 1994; Morrow, 1999). Children's accounts in this preliminary research were taken at face value, although no evidence was found to suggest that children's accounts should not be believed.

In addition, in contrast to Mayall (1994), across the three preliminary studies, no evidence was found that children expressed a social desirability response (any more than any other research) or that children had difficulty separating truth from fiction. Similarly, children across all age groups in all studies were clearly able to assent or dissent to take part in the research. This supports the idea that problems of social desirability and acquiescence are no greater for children than adults (Marshman & Hall, 2008).

There was some evidence to suggest that young children may have had difficulty articulating their thoughts, for example, some responses were short during the focus groups and interview study. It is not clear whether this was due to children's limited experience and/or knowledge or because of the situation of being asked questions by a stranger. In an ethnographic study of children's experiences of everyday health, children disclosed (once they had got to know and trust the researcher) that the initial interviews the researcher conducted were influenced by her being a 'stranger' (Christensen, 2004).

In the present studies, even where children were shy, there was no evidence that children were incapable as interview respondents, as all children were capable of answering at least some questions. This contradicts Scott (2000) who suggested that only children aged 7 and above are able to respond in both semi-structured and group interviews and supports other researchers (e.g., Marshman & Hall, 2008) who have found a number of methods are suitable for young children. In considering the method, it is also important to look at the limitations of the research overall, as these influence the generalisability of the findings.

9.4 Strengths and Limitations of the Preliminary Research

The main limitations were an unrepresentative sample in terms of ethnicity, race, and SES, and a small sample size. Firstly, although information about race and ethnicity was not obtained directly from participants, an indication of these was obtained via school Ofsted reports, which include a section detailing the demographics of the school's population. It was evident from the Ofsted reports that all studies were conducted in schools with largely White British pupils, in relatively affluent areas, which do not represent modern day UK society. The findings may, therefore, be limited to White, middle class samples. It would be interesting to note whether differences in children's perceptions of stress occur in ethnically, racially, and socioeconomically diverse populations within the UK.

Secondly, the three studies were all constrained by their small sample size. In many cases inferential statistics could not be conducted because of this and when statistics were conducted the power of any tests was limited. It would be useful to use a larger sample size in future research to see if the results can be replicated. The value of small scale research has been questioned (Greig et al., 2007). However, it was felt that the small sample sizes used in these studies was appropriate because they were preliminary in nature. The small sample sizes allowed the researcher to meet the aims of the study and to identify whether the method and age range was suitable, given the topic had not been studied before.

9.5 Reflexivity

And finally, as this preliminary body of work is being used to inform future studies, it is worth considering the lessons that can be learnt from this initial research.

It is important to be reflexive in the research process. The researcher came into the study having read information about children's understanding of health and illness. The researcher attempted to be unbiased in the analysis and interpretation of data, but it is possible that preconceived ideas about when children would develop an understanding of stress influenced the results. This was less of a problem in the forced choice study where analysis was more objective. In the other studies attempts were made to ensure that the accounts provided were grounded in the data, by providing quotes and using children's own words wherever possible. In the interview study, three people (all psychologists) were involved in the development of the coding scheme and coding process, this was positive as it allowed a range of opinions to be gained and discussed. However, this could be improved by using a coder from a different discipline (e.g., education), in order to take an inter-disciplinary approach and look at the transcripts from another perspective.

Ethical problems did arise in these preliminary studies. The procedures set in place in the university ethics proposal were adequate and the system of informing teachers of issues of concern was useful. It was also important to consider the needs of the researcher and regular supervision, during the data collection process, ensured that the researcher was able to share any concerns and to maintain good practice. These procedures should all be carried forward to future research.

9.6 Overview of Chapter

This section (Part Two) provided a brief introduction to the empirical research within the rest of this thesis. Three small, preliminary, studies were presented which explored children's understanding, knowledge, and experience of stress using different methods. Comparisons of the three methods were made. It was evident that further larger scale research exploring children's experience, knowledge, and understanding of both stress and coping would be useful. It was concluded that the most appropriate and effective method to do this would be to use a semi-structured interview method, but it was felt that a more participatory research method may help develop a rapport with children. This led to the development of the main study, using a draw-and-tell method prior to conducting a semi-structured interview, which is presented in Part Three.

PART THREE:
MAIN RESEARCH STUDIES

10. CHILDREN'S PERCEPTIONS OF STRESS REPRESENTED THROUGH PICTURES AND NARRATIVE

10.1 Abstract

Background: Drawings have been used, within health research, to help enhance communication between the researcher and child participant. The draw-and-tell technique involves children drawing a picture and talking to the researcher about his/her picture. This study investigated children's experiences of stress using a draw-and-tell technique.

Method: Drawings were obtained from 358 children (aged 4-11) in a classroom setting, within schools, across the Midlands, UK. Children, who had previously heard of the word stress, drew a picture of either themselves or another person who had been stressed ($n=275$); children, who had not heard of stress, drew a picture of their favourite person. A sub-sample of children ($n=216$, 182 stress pictures) then talked to the researcher about their pictures. Children's pictures were divided into three age groups according to school years (early childhood - aged 4 to 7; mid childhood - aged 7 to 9; late childhood - aged 9 to 11).

Findings: Some children across all age groups were able to draw 'stress' pictures. However, younger children's pictures were more likely to show few signs of stress and more often depicted a happy face, than children in the upper age groups. Despite being asked to draw a picture of a person, many older children depicted social scenes including multiple people, for example, playing team games, and bullying. Common themes identified through content analysis of pictures and narratives included: sad mouth, open mouth, straight mouth, and hands raised.

Conclusion: Both aspects of the draw-and-tell approach were useful for exploring children's perceptions of stress. Children's narratives reduced the subjectivity of picture analysis.

10.2 Introduction

10.2.1 Summary of Previous Research

From the preliminary studies, it was concluded that the semi-structured interview was the most appropriate and effective method to explore children's understanding of stress, but it was necessary to develop a greater rapport with children prior to the interviews. Therefore, further consideration was given to participatory research methods. A review of the literature revealed that

drawings may be a useful way to develop a link with children that enhances and facilitates communication (Driessnack, 2005; Sartain, Clarke, & Heyman, 2000). Christensen & James (2000) document a number of reasons why drawings are useful for research with children, including: (a) they can be used across all age groups of children; (b) they are a familiar, ordinary activity that children partake in; and (c) the picture provides a non-verbal means of communication, which can be expanded on with verbal discussion. In addition, drawing or artwork in itself is relaxing. When a child is relaxed, they are less likely to be defensive and more likely to communicate with adults (Arrington, 2001). Despite drawings being useful, these, along with other visual methodologies, are not in mainstream use in research with children (Harrison, 2002), that was the reason why they were not initially considered in the review of methods suitable for children in Chapter 5. However, children's drawings have been studied within psychology for over one hundred years.

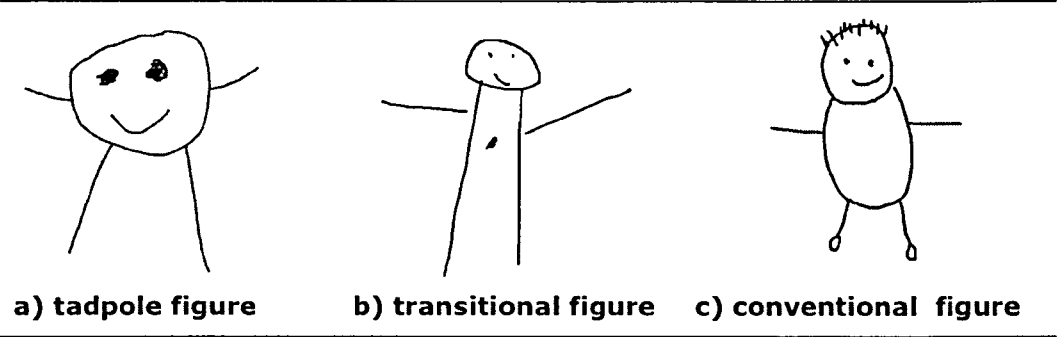
10.2.2 Children's drawings

Children's drawings follow a developmental sequence (see Figure 10.1). In early infancy (under the age of 2-years), at least in Western society, children's drawings are usually in the form of scribbles (for a review of young children's drawing development see Cox, 1997). Cox states that this develops into more representational drawing at 3- to 4-years of age, particularly, if children are asked specifically to draw a human figure. When asked to draw a person, most 3-year old children draw so-called 'tadpole figures' where there is a large head and legs, but no body (see Figure 10.1a).

As children increase in age (and drawing ability), they may add eyes and a mouth, and less typically a nose to the tadpole figure and arms may be added to the sides of the head (as in Figure 10.1a). These elements are often termed canonical categories, as they are the main features that children perceive in a human figure and are seen across children's drawings. The next stage of drawing ability Cox (1997) describes is the transitional figure. In this figure, children draw a tadpole type figure but arms join onto the legs and children may add in body features such as a belly button to the space between the legs (see Figure 10.1b). Not all children draw a transitional figure, and some may move directly on to draw a more conventional figure with a square or round body (see Figure 10.1c). Although presented in a stage-like manner, not all children follow this progression - with many children moving between scribbles, tadpoles, and transitional figures. Nevertheless, once children draw the conventional figure,

this is often maintained (although children may regress to earlier stages if they have not drawn for a while or are under stress).

Figure 10.1. Young Children’s Drawings of a Person



On the conventional figure, at the age of 4-years, children’s drawings generally include a head, eyes, mouth, arms, and legs. By 5-years, the figure is more detailed and may also include: hair, eyelashes, eyebrows, pupils, nose, chin, ears, neck, trunk, arms (attached to the trunk at the proper place usually out to the side), fingers, feet, shoes, and two pieces of clothing. It is only at age six that children can depict figures with arms placed in a position other than straight out or at the sides. Children’s drawings continue to develop as they increase in age, providing more detail, for example, to clothing (Skybo, Ryanwenger, & Su, 2007). It is important to note this developmental progression in drawing ability, when considering research looking at drawings by young children (Backett-Milburn & McKie, 1999). Looman (2006) stated that the developmental stage may influence how children symbolise their experiences. She tabulated the major stages of artistic development - moving from scribbling to realistic illustrations and linked each of these to the Piagetian stages of cognitive development (see Table 10.1). Looman used this table to discuss children’s drawings after Hurricane Katrina in the USA.

As well as age influencing the content of children’s drawings, as described previously, socio-demographic/economic factors also influence what children draw. Gender differences in children’s drawings have been identified. In a letter to the editor Ortega, Arnold, & Smeltzer (1988) reported that girls’ human figure drawings tended to be significantly taller and included more detailed facial features, toes and feet than boys’ drawings. Whereas boys tended to include more features on the body than girls. Boys were also more likely to include a

hat than girls. Similarly, Oğuz (2010) asserts that girls use more colours than boys in their drawings.

Table 10.1. Stages of Children's Artistic and Cognitive Development

Stage of artistic development	Stage of cognitive development (Piaget)	Approximate age range	Implications for expression through drawings
Scribbling Stage	Latter part of sensorimotor period, beginning of preoperational	18 months to 3-years	Child thinks kinaesthetically, begins to improve eye hand coordination, likes to imitate speech and actions of others; later, begins to recognize the edge of the paper and draw shapes
Basic forms	Preoperational/Preconceptual	2- to 4-years	Child enjoys naming and inventing stories about drawings, will actively seek to talk about the drawings; symbolic thought is emerging; developmental landmark: child can connect marks on paper to the world around them; shapes, designs, and beginning human figures appear
Human forms and early schemata	Preoperational	4- to 6-years	Child has increased symbolic thought, ability to classify and see relationships; child conceives space as primarily being related to his/her own body; 'tadpole' drawings of people appear; often draws houses, sun, flowers, trees (common things in environment)
Emergence of visual schema	Concrete operations	7- to 9-years	Child develops visual symbols/true schemata for human figures, animals, houses—often fairly standard to most children's drawings (house with triangular roof, person with hairstyle, arms and legs); groundline appears; may exaggerate size to emphasize something to the viewer
Interest in realistic drawing	Concrete operations	9- to 12-years	Child begins to shift away from egocentric thinking and considers thoughts, feelings of others; understands relationships, cause and effect; increasingly aware of the world around him or her
Adolescent artistic development	Formal operations	12-years+	Child thinks about large systems of events, can reason about ideas, impossibilities, probabilities, and broad abstract concepts; child's drawings are less free due to a need for perfection/photogenic effect; may not draw at all at this stage

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Socioeconomic factors have also been found to influence children's drawings. In a recent draw-and-write study, exploring children's views of cancer and health

behaviours in deprived, affluent, and rural locations in Scotland, only children in deprived areas mentioned factors such as illegal drugs and alcohol abuse as causes of cancer (Knighting, Rowa-Dewar, Malcolm, Kearney, & Gibson, 2011). Therefore, gender and socio-demographic/economic differences should also be considered when evaluating children's drawings; this is particularly so when using drawings to assess children's ability.

10.2.2.1 *Using drawings to assess children's ability*

Some researchers believe that children's intelligence can be measured by their drawing ability. In the 1920s Florence Goodenough developed the Draw-a-Man test, which has since been further developed/updated (e.g., Harris, 1963; Williams, 2006). In this and similar tests, children are asked to draw a picture (or multiple pictures) of a person/people which is/are then analysed for features such as particular body parts, proportions and co-ordination of lines. Children's pictures are allocated a score, which is then compared to norms for the age and can be converted to an IQ score using a standardised chart. The use of drawings to assess intelligence is, however, questionable and the validity of measures has been debated (see Motta, Little, & Tobin, 1993), as has the usefulness of pictures to assess emotional or cognitive stability.

Children's emotional stability or adjustment has also been measured using projective interpretations of children's pictures (e.g., Clatworthy, Simon, & Tiedeman, 1999; Dağlıoğlu, Deniz, & Kan, 2010). These interpretations assume that children project or reveal their inner emotional state in their drawings (Bradding & Horstman, 1999), which may be determined by examining drawings for features such as content, omissions, pressure, use of space and motor-control (Milne & Greenway, 1999). For example, Koppitz (1968) developed a classification system of so-called 'emotional indicators' that may be found in children's drawings that are said to assess emotional development and mental maturation (Williams, 2006). This classification system included features which may be omitted (e.g., facial features, neck, feet), features relating to quality (e.g., shading of all or part of face; gross asymmetry of limbs, broken or sketchy lines) and other special features (e.g., tiny or large head, vacant eyes with no pupils, big hands, and teeth). Children's pictures are rated for the presence or absence of these features, each of which is associated with a specific trait or anxiety. For example, if a 5- to 12-year old child omits the mouth, this may show that the child is experiencing anxiety, fear, perfectionism, insecurity and depression; he/she may withdraw and have an inability or refusal to

communicate with others (Koppitz, 1968). In a similar way, art therapy assessments often involve making judgements about client's artwork. For example, Kim (2008) notes that research suggests the colour red is thought to reflect emotions such as violence, passion, aggression and anger. However, the use of drawings as emotional indicators has been widely criticised as factors such as '*shading of the face*' and '*pressure with pencil*', core features which are said to reflect emotional stability, often vary (Cox, 1997). Some researchers argue that pictures are not reliable indicators of emotional states (e.g., Motta et al., 1993), others assert that they can be used effectively (see review Skybo et al., 2007).

Perhaps rather less contentiously, drawings have also been used to explore feelings and thoughts (e.g., Carroll & Ryan-Wenger, 1999; Kortessluoma, Punamaki, & Nikkonen, 2008). Pictures have been used in therapeutic settings, for example, to help therapists working with children who have experienced trauma (Malchiodi, 2001). In these contexts, drawings are not necessarily seen as reflections of inner emotions, but rather are used to encourage the child to talk about his/her experiences. These experiences can then be included in therapeutic work, for example, reconstructing children's interpretations and helping him/her to express feelings (Hanney & Kozlowska, 2002). There is, subsequently, a relatively large body of work that illustrates that drawing helps children to talk about emotionally laden events (e.g., Gross & Hayne, 1998; Stafstrom, 2003; Stafstrom, Rostasy, & Minster, 2002; Wesson & Salmon, 2001). This body of work has demonstrated that drawings help children to talk about frightening or threatening issues that are deemed as difficult to talk about.

Gross and Haynes (1998) investigated how, and if, drawing facilitated children's verbal reports. They found that drawing enhanced children's communication of feelings and perceptions. Children who drew pictures whilst talking about their experiences reported more information than children who were just asked to talk. Similarly, in a study by Salmon, Roncolato, & Gleitzman (2003), 5- to 7-year old children were asked to either draw-and-tell, re-enact and tell, or just talk about an emotionally laden event that made them feel scared. It was found that children who drew told more than the other children. This was substantiated in a more recent study which included a wider age range of children (5- to 12-years). Again, it was found that draw-and-tell resulted in more information being produced than just talking about emotional events (Patterson & Hayne, 2009). The reasons why this happens are not clear, although Gross and Haynes identified a number of possible reasons. Firstly, they

propose that drawing may reduce anxiety, helping the child to be more comfortable with the researcher. Secondly, they assert that drawings act as a memory retrieval aid or prompt and that children remember more about the event as they are drawing. Alternatively, they propose that the drawing process helps children organise their thoughts and subsequent narratives. Finally, they maintain that drawing increases the length of the interview allowing children to talk for longer. Patterson & Hayne (2009) also demonstrated that drawing changes how interviewers ask questions and leads to more indirect prompts (e.g., 'uh huh', 'wow', 'really') from the interviewer. Whatever the reason, it appears that drawings may be a useful technique to help children to talk about their experiences, including their experiences and knowledge of health.

10.2.2.2 *Using drawings in health research*

Drawings have been used in health research. In the 1950s (Tait & Aseher, 1955) and 1970s (Porter, 1974), a technique called the 'inside-of-the-body test' was used to explore children's perceptions of their internal bodies. In these studies children were given a basic diagram of the human figure and asked to draw what was inside the body. The authors found that there were differences in children's understanding across age groups. For example, very young children (below 5-years) drew food, bones and blood, older children (aged 5-7) included major organs such as the heart and brain. The number of organs increased as children increased in age. This method has subsequently been used to explore children and young people's understanding of chronic conditions such as chronic juvenile arthritis (Beales, Holt, Keen, & Mellor, 1983). When working with children in pain, healthcare professionals and researchers have also used drawings to inform their practice. For example, Kortessluoma, Punamaki, & Nikkonen (2008) compared hospitalised children's drawings of a person with a healthy control group's drawings. They found that children's pictures differed in content, with children in hospital more frequently depicting medical procedures.

10.2.2.3 *Draw-and-write/-tell/-talk*

Another drawing technique also asks children to write (draw-and-write/-label) or talk (draw-and-talk/-tell/-dialogue) about their drawings. Thus, draw-and-tell/-write is a technique which provides an indirect measure of perceptions or beliefs and is particularly useful when participants are unable to respond to direct questioning (Catterall & Ibbotson, 2000). Draw-and-tell/-write approaches have been recognised as being a useful starting point for interviews, a good way to obtain both quantitative and qualitative data and to be cheap and quick to

conduct (Harrison, 2002). The technique can also be used in a classroom environment without too much disruption (Pridmore & Bendelow, 1995). Pridmore & Lansdown (1997) assert that drawing can help to break down barriers and allow children to express themselves. Pridmore & Lansdown compared three different techniques: draw-and-write, draw-and-label, and writing alone, to investigate which provided greatest insight into children's health perceptions. They found that the number of categories was similar across methods, and each technique had both advantages and disadvantages. For example, draw-and-write/-label highlighted links across categories, writing alone was quicker. In the research, the authors encouraged children to seek help with writing if they needed it, allowing children with language difficulties to participate in the research. However, Pridmore & Lansdown did state that draw-and-dialogue may be better for younger children. The authors concluded that no one method was better than the others. They, therefore, contend that the method selected should be the most appropriate in terms of the research question and situational constraints.

As well as differing in terms of how the drawing is described (through writing or talk), drawing studies also vary in how and why the technique is used. Draw-and-write has been used in research as a task in itself, as well as being part of a wider programme of research, for example, with subsequent group interviews. It has also been used as an ice-breaking activity to encourage children to respond to interview questions (Backett-Milburn & McKie, 1999). In all of these ways, draw-and-write/-tell has been used to explore a range of health related topics. These topics have included lifestyle choices and behaviours such as infant feeding (Angell, 2009), smoking (Bak & Piko, 2007), and attitudes towards the effects of the sun and skin cancer (Pion et al., 1997; Rademaker, Wyllie, Collins, & Wetton, 1996). It has also been used to assess children's perceptions of operations and their preoperative needs (e.g., Buckley & Savage, 2010; Smith & Callery, 2005), as well as exploring conditions such as HIV/AIDS, cancer, and pain (Campbell, Skovdal, Mupambireyi, & Gregson, 2010; Franck, Sheikh, & Oulton, 2008; Knighting, Rowa-Dewar, Malcolm, Kearney, & Gibson, 2011; Kortessluoma, 2004; Rollins, 1990; Rollins, 2005). Children's conceptualisations of health (Pridmore & Bendelow, 1995), and illness (Guillemin, 2004) have also been researched using a draw-and-tell or draw-and-write approach.

As can be seen from the aforementioned studies, potentially sensitive topics (such as cancer, breastfeeding, and AIDS) have been assessed using the draw-

and-tell/-write technique. The technique has also been used to explore less sensitive issues. For example, in a recent study exploring 10- to 13-year old children's self concept in Ireland, children were asked to draw pictures of their favourite people and favourite things to do (Tatlow-Golden & Guerin, 2010). Pictures of favourite people were generally family members, including extended family, and friends, but also included pets. Approximately 10% of boys also drew pictures of celebrities, fictional characters and other people.

As well as variations in the type of study and topic areas, draw-and-write research has also differed in terms of analysis. Tatlow-Golden & Guerin (2010) document how, initially, analysis of draw-and-write data tended to only cover the narrative (tell or write), rather than the visual illustrations. Nowadays, drawings are also accepted to yield a rich source of data and are analysed for content in many studies. However, there are concerns about the interpretation of children's drawings by adults (Thomas & Kane, 1998). Backett-Milburn & McKie (1999) advise researchers to avoid over-interpreting drawings as being meaningful or representative of children's views. They assert that children produce images that merely illustrate their social world and reflect the prevailing perceptions of the topic in their culture; perhaps drawing what they believe adults expect them to. Backett-Milburn & McKie also comment that the context/setting in which pictures are produced may influence the outcome. Asking children to describe their pictures (either written or verbally) reduces the subjective analysis of children's pictures by adults, and allowing children to interpret their own pictures enhances the content validity (Bendelow, Williams, & Aclu, 1996; Pridmore & Bendelow, 1995). Giving the child the opportunity to talk about everything in the picture also allows the researcher to clarify what the child has drawn and may yield further information (Malchiodi, 2001).

To summarise, there have been a number of relevant studies conducted to explore children's understanding of topics related to health using the draw-and-write/tell method, but, as far as the researcher is aware, this technique has never been used to explore children's perceptions of stress. The present study attempts to address this gap in the literature.

10.2.3 The present research

The present research aimed to expand on the preliminary research studies, to explore children's perceptions of stress. As noted earlier, children's drawings of the human figure begin to take a common recognisable form at around 4-years

of age; this is also the age some children expressed knowledge of stress in the preliminary studies. Therefore, the lower age was set, again, at 4-years. As another aim of the study was to develop a rapport with each child to make the semi-structured interview easier, it was felt important to engage children in talking with the researcher. As children of this age are only just beginning to develop writing skills, draw-and-tell was selected rather than draw-and-write. Due to the differing theoretical approaches that may explain children's developing understanding (as outlined in Chapter 3), the research was not deductive (it did not set out specifically to test existing theory) but was inductive in that it attempted to define children's understanding in terms of observed, measurable variables. These variables were the frequency various elements were depicted in children's drawings or narratives. The research drew on both qualitative and quantitative techniques, using statistics to quantify qualitative findings.

Research aims and objectives

The present study, therefore, aimed to explore and identify children's perspectives of stress from 4- to 11-years of age, using a draw-and-tell technique. The key objectives of this research were to:

- Identify whether children were able to depict stress in pictures. It was important to clarify whether there was a specific age at which most children had heard of stress and were able to demonstrate this pictorially.
- Explore children's perceptions of stress (within the context of their daily lives) in themselves and others, using thematic content analysis of pictures and narratives. It was questioned whether the themes identified in the preliminary studies would be replicated in a larger sample.
- Consider whether older children include more features in their pictures than younger children and investigate whether there is a relationship between the number of features and age.
- Investigate whether gender and socioeconomic background influence perceptions of stress depicted through drawings and narratives.

10.3 Method

10.3.1 Design

This exploratory cross-sectional descriptive study used a draw-and-tell technique to elicit pictures and narratives from children across three age groups. Pictures and transcribed narratives were rated for the presence or absence of 22

concepts relating to biological, psychological, and social factors associated with stress.

10.3.2 Participants

An a-priori sample size was determined using power analysis (G*Power 3; Faul, Erdfelder, Lang, & Buchner, 2007). Assuming a medium effect size (0.30), with 0.95 power, based on chi-square comparisons of three groups (aged 4-7, 7-9, 9-11), a minimum sample size of 172 was required.

The sample was a convenience sample in that it was limited to schools accessible by public transport, across the Midlands. Sixty primary school headteachers were asked to take part in the study. Initial contact was made by sending a letter, research proposal, and reply slip to the named headteacher (names were obtained from government websites). If no response was heard from schools via the reply slip (which provided the option to take part or opt out of the research) a follow-up phone call was made within one month of sending out letters. Only three schools agreed to take part using this method of recruitment, one of which later withdrew due to having an upcoming school inspection. In the latter stages of the research, schools were recruited via acquaintances who knew someone within the school; this person acted as a link to the gatekeeper. This method of recruitment was much more successful with two out of three schools contacted in this way agreeing to participate. Overall, five headteachers (approximately 8% response rate) agreed to take part in the study. Once schools had agreed provisionally to participate, a preliminary visit was made to explain the study in further detail and discuss consent and child protection issues.

The four schools that finally took part in the research were diverse (see Table 10.2). One school was a fee-paying independent school and the other three were state maintained schools. All schools were mixed-gender. Permission to acquire data about individual children's ethnicity and social class was not sought, but a broad overview of the demographics of the schools was ascertained via school Ofsted reports obtained online (www.ofsted.gov.uk) and from the independent schools council website (www.isc.co.uk). Participating schools showed a broad range of socioeconomic diversity, ascertained through the number of students qualifying for free school lunches. This was also reflected in the English Indices of Deprivation rankings for each school catchment area (www.communities.gov.uk). According to this index, where 0% indicates high deprivation and 100% indicates low deprivation, two schools were in areas of

high deprivation (in the bottom 15% of England), one school was just above 30% and the final school was nearly 70%. Racial diversity was also broad and the number of non-White British children ranged from less than 1% to over 85%.

Table 10.2. Information About Schools in Main Studies

Variables	School number			
	1.	2.	3.	4.
No. of children who took part in study	117	87	128	26
Age range of children at school	3-11	3-11	7-11	3-11
Type of school	State	State	State	Fee
Approximate ranking on indices of deprivation ^a	7	13	30	70
No. children from minority ethnic backgrounds	A	A	B	B
No. children eligible for free school lunch	A	C	B	B
No. children with statement of educational need	C	A	A	B

Note. A=above average; B=below average, C=average.
^a The deprivation ranking (0=high deprivation, 100=low deprivation), for each school catchment area, was obtained from the English Indices of Deprivation (www.communities.gov.uk).

A total of 358 children took part in the drawing element of the study, ten of which were excluded leaving 174 males and 174 females. Data were collected in class groups or smaller groups within classes for the youngest children. The total number of participants in each age group is shown in Table 10.3.

Table 10.3. Age and Number of Children in Each Year Group in Main Studies

Age group	School Year group	No. of children	Age range (years and months)
Early childhood (4- to 7-years)	Reception	53	4y 8m - 5y 7m
	Year 1	54	5y 8m - 6y 7m
	Year 2	51	6y 8m - 7y 8m
Middle childhood (7- to 9-years)	Year 3	47	7y 8m - 8y 7m
	Year 4	46	8y 8m - 9y 7m
Late childhood (9- to 11-years)	Year 5	47	9y 8m - 10y 8m
	Year 6	60	10y 8m - 11y 7m

Children were asked to volunteer to take part in the study (if adult consent had been obtained). Approximately 40% of children opted out of the whole study (range between 5% and 50% in each class). Some classes were not asked to take part due to being on school trips or in sports lessons on the day of testing. Most children wanted to draw pictures but fewer children (74%) wanted to take part in the 'tell' part of the study. Not all children who wanted to take part in the tell element were able to do so, due to the researcher running out of time in the schools.

10.3.3 Ethics

Many of the ethical factors that were considered in this research were discussed thoroughly in Chapter 4. However, as the preliminary studies had indicated that some children may raise issues that would need to be passed on to appropriate others, further consideration was given to ethical factors to ensure that the research was in the children's best interests.

The level of informed consent was at the headteacher's discretion in each school that participated. In one school parents were asked to opt-in to the research, in another school parents were asked to opt-out of the research and, in the remaining two schools, the headteacher considered the research fell within the normal curriculum and provided informed consent in *loco parentis*.

In addition to gaining informed consent from appropriate adults, it was felt important to ensure that children fully entered into the research knowing what the researcher would do with the information and when this information would be shared with others. Due to children's known difficulties understanding the term confidentiality (Hurley & Underwood, 2002) this was explained to children as 'will not tell anyone else'. It was made clear to the children, at various time points through the study (in a class group as well as prior to individual interviews), that the researcher may have to tell others about what the children had said if they mentioned that they were getting hurt in any way.

10.3.4 Materials

Materials included coloured pencil crayons, pencils, A4 paper with space for name, gender, and age on one side, and a blank A4 side for picture (Appendix 2).

10.3.5 Procedure

The first school acted as a pilot to test the method, but no changes were needed. Having obtained consent from appropriate adults, children were provided with the background information about the study in a class group. It was made clear to the class that children were the experts in what children think and know and that there were no right or wrong answers. Children were also told that the task involved drawing, but that drawing ability did not matter.

Having gained assent from children, they were provided with a response sheet (Appendix 2). Children followed the details on the response sheet as they were read aloud in the classroom by the researcher – to ensure understanding regardless of reading ability. Children were asked to write their first name and circle their age, and a picture showing whether they were a boy or girl. Older children were also asked to write the day and month of their birthday. This information was provided by teachers for younger children.

After completing the demographic information, children were asked to turn their response sheets over so that they had a blank A4 piece of paper. Children were asked to raise their hands if they had ever heard the word stress before.

Children who had seen someone stressed or personally felt stressed were asked to draw a picture of a person, either themselves when they had been stressed, or someone else that they had seen being stressed. Children who had not heard of stress were asked to draw a picture of their favourite person. Children who did not want to participate in the research or whose parents/carers had not provided consent, were given the choice of an alternative task: to draw a picture of anything that they want, to read a school book, or to complete school work. Children who completed the task faster than their peers were also given these options.

Children were not given any clues or hints about what to draw. If children asked, they were again reassured that there are no right or wrong answers and to think about a time when they had been stressed or when they had seen another person who was stressed and to draw either themselves or another person stressed. Drawings took between 5 and 20 minutes to complete. Two children stated that they did not finish colouring in their pictures within the time allowed. Each child was asked for permission to use his/her picture in research and publications, if he/she consented, he/she was then asked if the researcher could keep his/her picture; only one child wanted to keep his/her own picture.

Children were then invited to tell the researcher about his/her drawing on a one-to-one basis. Again, participation was optional and children had the opportunity to withdraw from the study at this point. Children who did talk to the researcher were, firstly, asked an open-ended question to tell the researcher about their picture. Follow up prompts: *'tell me more'* and *'is there anything else that you want to tell me about your picture'* as well as non-verbal communication, such as head nodding, was used to elicit as much information as possible from the children. The researcher then clarified any unclear images in the drawing, which the child had not already mentioned and, where necessary, clarified any contradicting information children had provided. For example, one child had said that a picture was both his mother and his auntie. Children were debriefed and given the opportunity to ask the researcher any questions. All conversations were digitally recorded with the child's consent; only two children refused. Notes were made during the recording to indicate any non-verbal behaviour, such as imitating facial expressions. The recordings were saved anonymously as electronic sound files, from which they were transcribed verbatim by the researcher. The transcription symbols, as illustrated in Table 10.4, based on Hyden & Bulow (2003), were used.

Table 10.4. Transcription Symbols and Meanings

Symbol	Meaning	Example
[name]	Name of person or place, removed to protect identity	<i>"Some people call from [name of place]"</i> .
-	a short cut-off of prior word and a sound interruption like 'ab-'	<i>"Some and and he be stressed, he be str- about us"</i> .
,	Continuing intonation	<i>"These are eyebrows, this is my hair, that's my neck and that's a body"</i> .
.	Concluding intonation	<i>"Actually I'm wearing a dress on my body"</i> .
?	Questioning intonation	<i>"Why do they get cross all the time? It's hard to think"</i> .
(---)	Inaudible word or words	<i>"My mum, she's like, she is a single mum. Like my auntie, they like, they were [---] for two hours and she found she had cancer and she died and it is hard because she died cause had cancer"</i> .
[?]	Uncertain interpretation of preceding word	<i>"There is a sun. I have a brown cross face. I have not finished the picture [the picture?]"</i> .
((laughs))	Non-verbal activity or the transcriber's comments on contextual or other features	<i>"Because she was angry. She would make an angry face, ((demonstrates holding her mouth together)). Because she forgot to get her car keys"</i> .
[interruption]	Pause in interview due to interruption from other children or staff	<i>"It's me, I'm stressed because I'm quite worried about my SATs results [Interruption]. It's me about my SATs results. I don't know if I am going to pass or fail"</i> .

Names were obtained to aid quick identification of pictures when children were interviewed and to enable the researcher to respond to and encourage the child by stating his/her name. However, all personal details, including identifiable text, were removed from the pictures/transcripts prior to coding and coders were blind to the gender and age of the child drawer. Names were stored to ensure that pseudonyms, selected in alphabetic order from a baby naming book, did not duplicate real names. Pseudonyms are again used throughout the write up.

10.3.6 Analysis

The subjective nature of drawings, leading to difficulties in analysis and false interpretations, has been documented by Greig, Taylor, & MacKay (2007). In order to lessen the subjectiveness of analysis, efforts were made to document the decision trail in analysis. Techniques from thematic content analysis were used to code the pictures and related narratives. A coding scheme was developed by the researcher using a 'bottom up' approach. A sample of 50 pictures collected from a single school, were examined to note any key features which regularly appeared. This resulted in the identification of 22 main features. Each key feature was given a code name (e.g., 'sad face') and an example provided in a coding manual. Explicit category definitions and coding rules were developed to avoid ambiguity and to ensure that categories were independent, mutually exclusive, and exhaustive (Neuendorf, 2002).

Three people (the researcher, a counselling psychologist, and a teacher) independently coded the picture data for the presence of these 22 main codes, using the coding manual. Where multiple people were drawn the main stressed person was selected. If it appeared that no one person was stressed, the main (largest/most prominent) character in the picture was coded. Raters were invited to suggest any additional codes and to report any difficulties with the coding process. Inter-rater reliability of the picture analysis was assessed using the Kappa statistic to determine consistency between each rater and the researcher. Due to the subjective nature of picture analysis, reliability of individual codes was considered as well as overall inter-rater reliability. During the final stages of analysis, the 22 main codes were collapsed into biological, psychological, social, and other higher-order categories or themes by the researcher and another psychologist.

10.4 Results

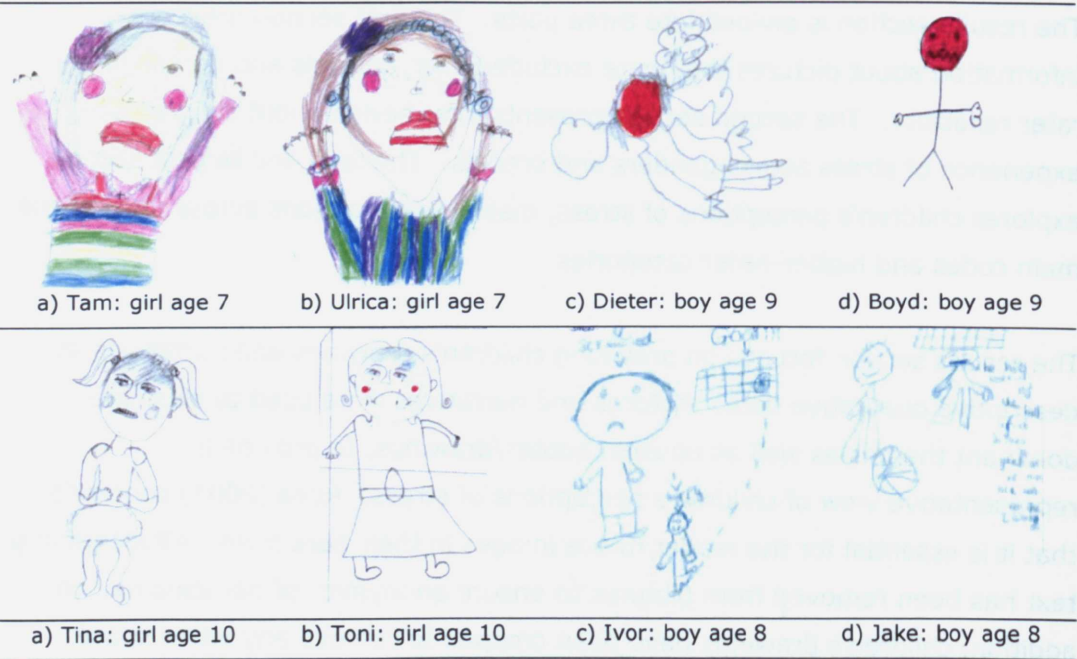
The results section is divided into three parts. The first section presents information about pictures that were excluded from analysis and details inter-rater reliability. The second section presents information about children's experience of stress across genders and schools. The final and largest section explores children's perceptions of stress, making comparisons across each of the main codes and higher-order categories.

The results section focuses on providing children's drawings and narratives as descriptive qualitative data. Pictures and narratives were used to illustrate dominant themes as well as unusual quotes/drawings, to provide a representative view of children's perceptions of stress. Rose (2001) contends that it is essential for the reader to see images in their pure form. All identifying text has been removed from pictures to ensure anonymity of participants. In addition, children's drawings have been cropped to remove any white space around the image. Certain pictures were cropped in order to illustrate specific features; these cropped pictures are marked with a scissor symbol (✂). As others have testified, it would be wrong to reduce the rich data contained in children's pictures merely into numbers (Bowker, 2007). However, chi-squared tests and ANOVAs have been used to compliment the picture/narrative data, when appropriate, to determine relationships across age groups. A two-tailed significance level of less than 0.01 was considered significant in all statistical analysis.

10.4.1 Excluded pictures

Drawings were completed by 358 children. Three pictures were excluded, as it was difficult to identify what the child had drawn and three children withdrew part way through his/her drawing. A further four pictures were excluded as one child did each of the following: coloured over his/her picture in black, drew a car crash without any people, drew a picture of an animal, and drew a picture of a 'stroke' rather than stress. There was evidence of apparent copying between class members, as illustrated in Figure 10.2.

Figure 10.2. Drawings Which Were Possibly Copied



Copying was apparent in four pairs of images. In one instance, copying was confirmed in the subsequent tell part of the study. 'Tamara' struggled to talk about who was in her picture, whereas 'Ulrica' confidently talked about her mother being stressed. Tamara's picture was, therefore, excluded. In the other pictures that appeared to be copied, all children were able to talk about their pictures confidently, for this reason the other potentially copied pictures were kept in the dataset. A total of 347 drawings was, therefore, included in the analysis.

10.4.2 Inter-rater reliability

The inter-rater reliability for each of the main codes is displayed in Table 10.5.

The range of Kappa between the researcher and the two other raters was 0.47–1.00. The large eyes category had lowest reliability, with only moderate agreement across raters. Kappa for most variables was ≥ 0.8 , this shows that reliability was substantial in most categories, with some variables obtaining perfect agreement. The inter-rater reliability for rater 1 [$\kappa=.84$ ($p<.001$), 95% CI: 0.82-0.86] was slightly lower than rater 2 [$\kappa=.91$ ($p<.001$), 95% CI: 0.89-0.92)], but both showed substantial agreement with the primary researcher. Data were, therefore, recoded into a single code using a majority rule. That is,

where two or more raters agreed on a single code (present or absent) this was recorded as such.

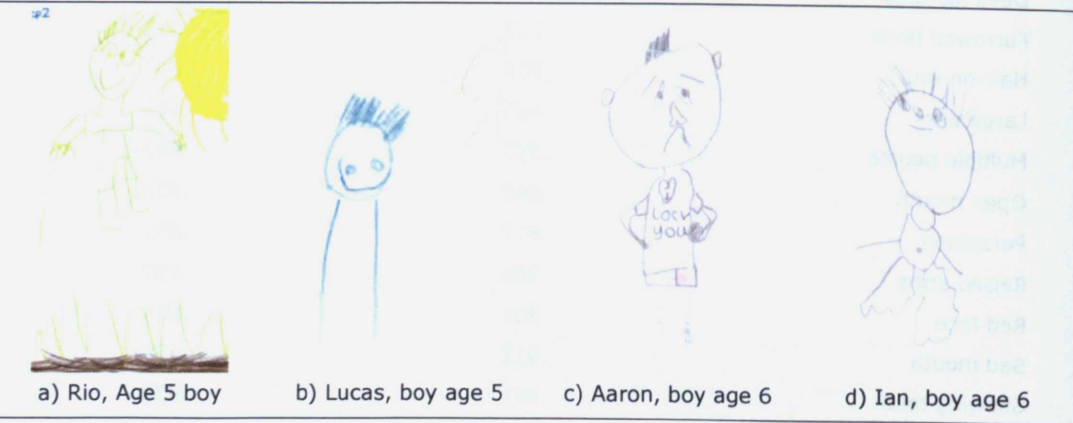
Table 10.5. Cohen’s Measure of Agreement for Each Salient Feature

	Coder 1: researcher	Coder 2: researcher
Code	K	κ
Aggression	.756	.860
Clouds	.924	.950
Crying	.808	.833
Depicts a scene	.794	.982
Devil features	.942	1.000
Furrowed brow	.852	.802
Hair-on-end	.800	.840
Large eyes	.465	.645
Multiple people	.932	.985
Open mouth	.848	.880
Perspiring	.817	.891
Raised arms	.808	.802
Red face	.806	.814
Sad mouth	.911	.929
Showing teeth	.852	.931
Shows stressor	.873	.988
Speech bubble	.982	.991
Squiggly mouth	.866	.893
Steam	.805	.962
Straight mouth	.785	.846
No signs of stress	.952	.976
Happy mouth	.929	.961

A further reliability check was conducted. The narratives of children describing their pictures were rated for the presence or absence of each of the 22 main codes. This was compared with the picture rating (the single, majority rule, code) obtained through the coding of the drawings. Although children’s descriptions did include additional extraneous details (e.g., what the person was wearing or the colour of his/her hair), no new stress related codes emerged from children’s narratives. However, it was apparent from children’s narratives that ten children, who had initially stated that they were going to draw stress pictures, actually drew pictures of his/her favourite person. All these pictures had been coded as ‘happy’ with ‘no signs of stress’, by the coding team.

Raters reported difficulties with the coding. In particular, the hair-on-end category caused problems. It was difficult to tell whether the child intended the hair-on-end as a feature of stress, whether this was simply how the child drew hair, or if the child was depicting a male with a short 'spiky' hairstyle (see Figure 10.3). Although agreement in the hair-on-end category was relatively high across raters, this category was excluded from subsequent analysis due to problems in interpretation. In addition, the large eyes category was excluded due to low reliability across raters.

Figure 10.3. Examples of Drawings Showing Hair-on-end



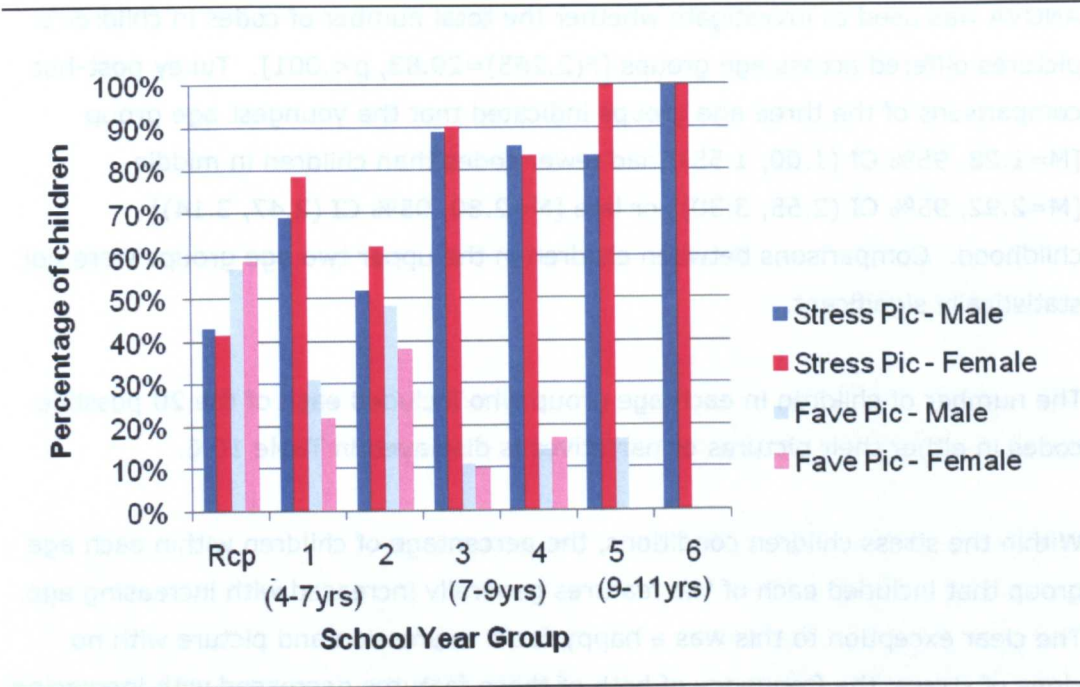
10.4.3 Boys’ and girls’ experience of stress

A summary of the percentage of boys and girls in each school year group drawing stress and favourite person pictures is shown in Figure 10.4. A total of 268 (77%) children drew stress pictures, suggesting that these children had either direct or indirect experience of stress. No significant differences were identified in the total number of children with experience of stress across genders.

Considering just the children who drew stress pictures and took part in interviews ($n=182$), it was possible to identify from children’s narratives that 66 children drew pictures of him/herself being stressed. The remainder drew pictures of other people (mum, dad, sibling, other family members, friends, teachers, and unknown people). The most frequently illustrated other people were mothers ($n=26$) and friends ($n=23$). The unknown people category included: imaginary people whom the child perceived would be stressed, for example, a girl whose boyfriend had left her; stressed people that children had seen in the street, who they did not know; as well as famous characters, such as

footballers when they missed scoring a goal or television soap characters. Haydon, the 6-year old boy who had drawn a picture of an animal (which was excluded from the analysis) explained that he was stressed because his cat, who was depicted, scratched him. Younger children (33.8%) drew more pictures of their family than middle (11.9%) or older children (12.2%), whereas the number of children drawing pictures of themselves increased with age (17.6%, 27.1%, and 36.7% respectively). Differences in the type of picture drawn were not significant across age groups or gender.

Figure 10.4. Percentage of Children Drawing Each Picture



10.4.4 Children’s perceptions of stress

There were also no significant gender differences in any of the main codes, nor were there any significant differences across schools; therefore, data across genders and schools was combined in subsequent analysis.

Some children across all age groups (early, middle and late childhood) were able to draw stress pictures. Children in early childhood consisted of three school year groups, in the lowest class – reception, just over 40% of children were able to depict stress, this increased in year one but decreased in year two (Figure 10.4). Overall, 51.2% of children in early childhood were able to draw stress pictures; this increased to 87.0% of children in middle childhood and increased

further to 97.1% in late childhood. Considering just the school year groups, 100% of children in year six (10- to 11-years old) were able to draw a stress picture.

Although 13.4% of the children who drew stress pictures had no signs of stress identifiable in their pictures, most (63.8%) displayed between one and three codes in their pictures, the remainder had between four and eight codes. Younger children (31%) had a greater number of pictures with no stress codes than children in mid- or late childhood (both 5%). In contrast, younger children (11.5%) were less likely than children in middle (28.8%) and late (30.7%) childhood to have four or more codes displayed in their pictures. A one-way ANOVA was used to investigate whether the total number of codes in children's pictures differed across age groups [$F(2,265)=29.83, p<.001$]. Tukey post-hoc comparisons of the three age groups indicated that the youngest age group [$M=1.28, 95\% \text{ CI } (1.00, 1.55)$] had fewer codes than children in middle [$M=2.92, 95\% \text{ CI } (2.55, 3.30)$] or late [$M=2.80, 95\% \text{ CI } (2.47, 3.14)$] childhood. Comparisons between children in the upper two age groups were not statistically significant.

The number of children in each age group who included each of the 20 possible codes in either their pictures or narratives is displayed in Table 10.6.

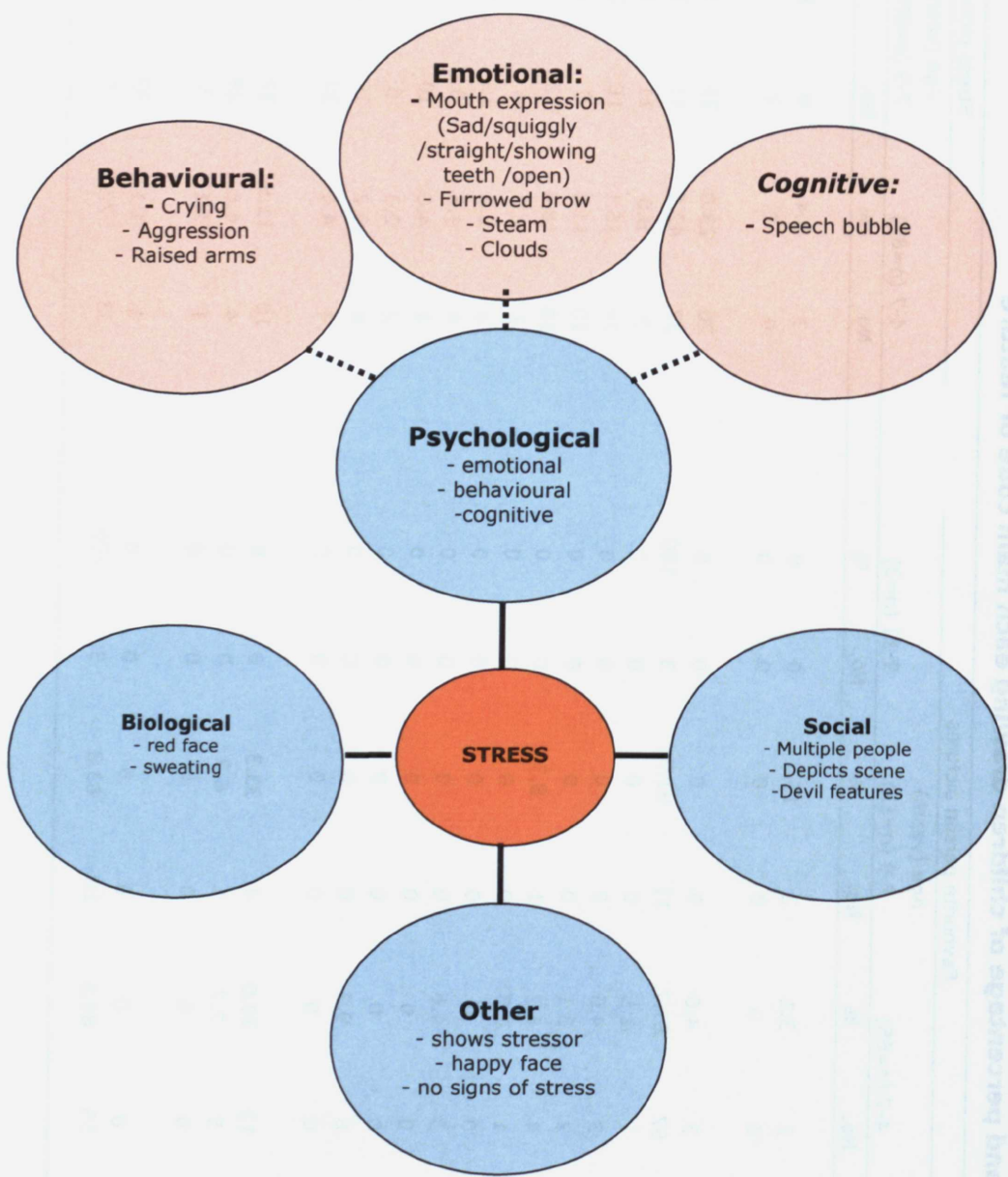
Within the stress children conditions, the percentage of children within each age group that included each of the features generally increased with increasing age. The clear exception to this was a happy facial expression and picture with no signs of stress, the frequency of both of these features decreased with increasing age.

Table 10.6. Number and percentage of children drawing each main code or feature

Code	Favourite person pictures						Stress pictures					
	Age (years)			Age (years)			Age (years)			Age (years)		
	7-9 (n=12)			9-11 (n=3)			4-7 (n=87)			7-9 (n=80)		
	No.	%	No.	No.	%	No.	No.	%	No.	No.	%	9-11 (n=101) No. %
Biological												
Red face	2	3.1	2	0	0	0	3	3.4	9	11.2	20	19.8
Sweating	0	0	0	0	0	0	0	0	2	2.5	4	4.0
Psychological												
Sad mouth	3	4.6	0	0	0	0	20	23.0	25	31.2	28	27.7
Happy mouth	57	87.7	11	3	100	37	42.5	42.5	11	13.8	9	8.9
Squiggly mouth	1	1.5	0	0	0	0	7	8.0	11	13.8	7	6.9
Straight mouth	3	4.6	0	0	0	0	14	16.1	16	20.0	26	25.7
Showing teeth	2	3.1	0	0	0	0	10	11.5	9	11.2	17	16.8
Open mouth	4	6.2	1	0	0	0	16	18.4	12	15.0	29	28.7
Furrowed brow	1	1.5	0	0	0	0	2	2.3	4	5.0	31	30.7
Steam	0	0	0	0	0	0	2	2.3	10	12.5	20	19.8
Clouds	3	4.6	0	0	0	0	4	4.6	3	3.8	1	1.0
Crying	0	0	0	0	0	0	4	4.6	10	12.5	13	12.9
Aggression	0	0	0	0	0	0	2	2.3	6	7.5	7	6.9
Raised arms	6	9.2	0	0	0	0	8	9.2	16	20.0	29	28.7
Speech bubble	0	0	0	0	0	0	4	4.6	30	37.5	21	20.8
Social												
Multiple people	13	20.0	4	0	0	0	10	11.5	37	46.2	11	10.9
Depicts a scene	5	7.7	1	0	0	0	4	4.6	29	36.2	16	15.8
Devil features	0	0	0	0	0	0	1	1.1	5	6.2	1	1.0
Others												
Shows stressor	0	0	0	0	0	0	1	1.1	32	40.0	14	13.9
No signs	55	84.6	10	3	100	33	37.9	37.9	7	8.8	1	1.0

The main codes identified in the pictures were grouped into higher-order categories: biological, psychological, social, and other features, as illustrated in Figure 10.5.

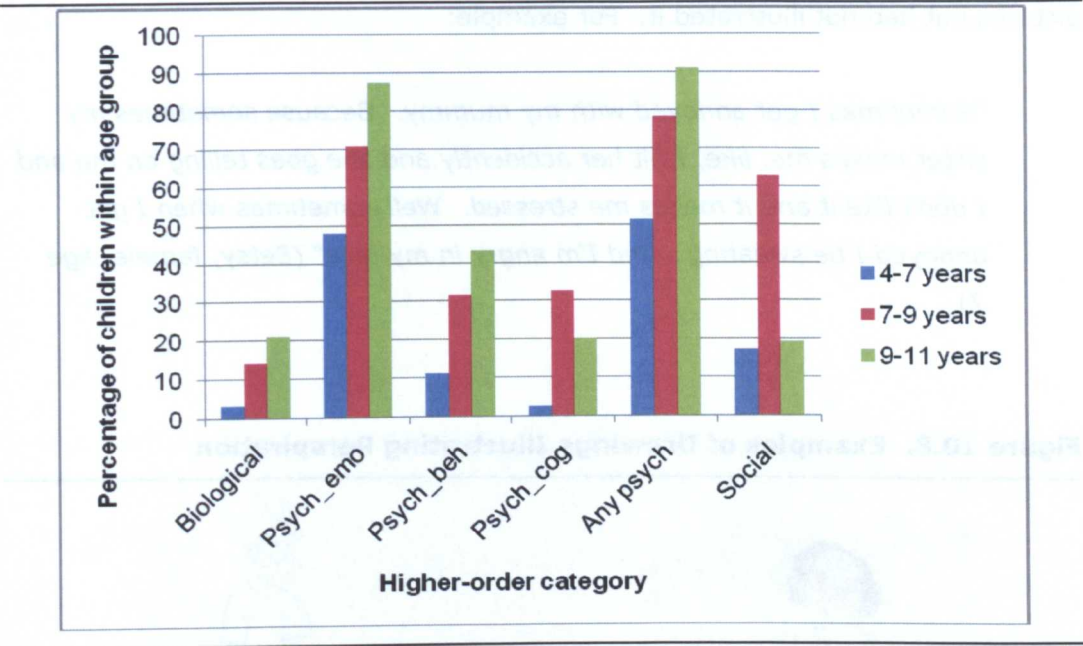
Figure 10.5. Categories Displayed in Stress Pictures



The total number of children who drew stress pictures, with codes in these higher-order categories is displayed in Figure 10.6. The graph illustrates that the percentage of children, within each age group, who mentioned emotional and behavioural psychological factors as well as biological factors, increased with

age. Cognitive psychological factors and social factors were most frequent in children in mid-childhood, aged 7- to 9-years. Each of these higher-order categories will be discussed in turn.

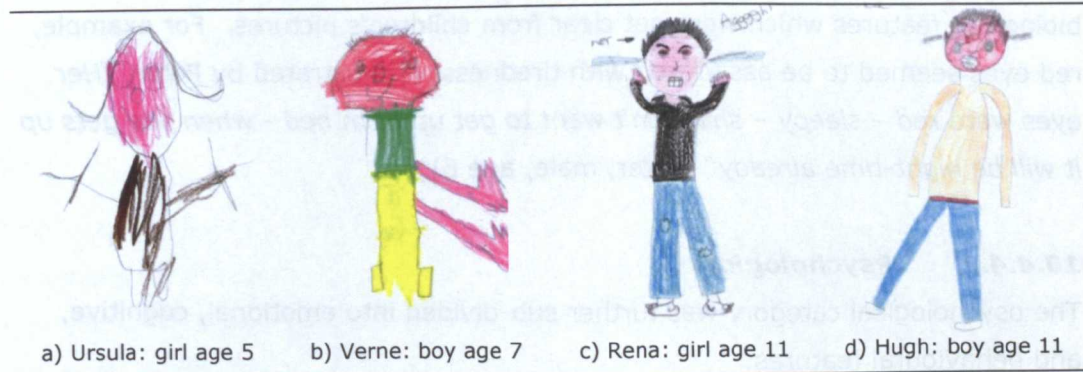
Figure 10.6. Percentage of Children Who Depicted Each Category



10.4.4.1 Biological

Two biological features were depicted, a red face and perspiration. Children drawing pictures of red faces (Figure 10.7) were apparent both in the stress pictures and the pictures of children’s favourite person. Within the stress category, the number of children drawing red faces increased with age.

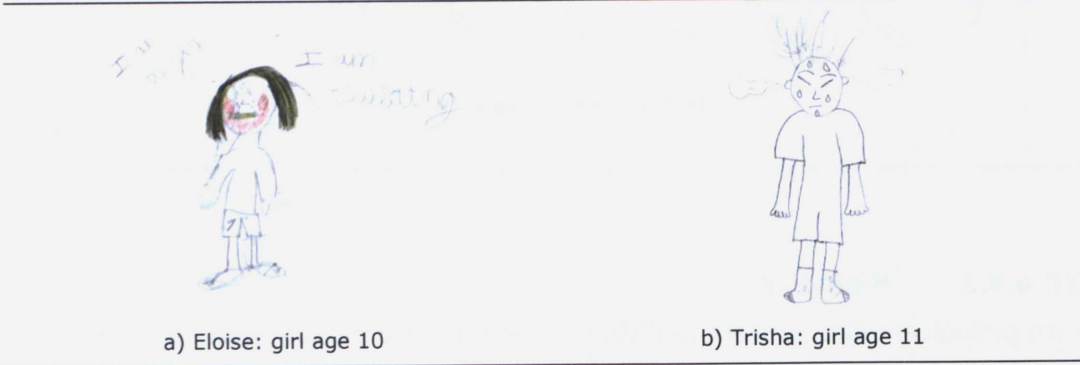
Figure 10.7. Examples of Drawings Showing Red Faces



Only children in middle and late childhood drew pictures illustrating a person perspiring, which was generally displayed pictorially as drops of sweat from the forehead - although one child tried to clarify this with writing (see Figure 10.8). Some children may have had difficulty in drawing people perspiring, but were, nevertheless, aware of it as a consequence of stress, as illustrated in the tell part of the study. Two children mentioned sweating in their descriptions about their pictures but had not illustrated it. For example:

"Sometimes I get annoyed with my mummy. Because sometimes my sister makes me, like, I hit her accidentally and she goes telling on me and I don't like it and it makes me stressed. Well sometimes when I get annoyed I be sweating. And I'm angry in my face" (Betsy, female, age 7).

Figure 10.8. Examples of Drawings Illustrating Perspiration



Considering the biological features together, children in early childhood were significantly less likely to include biological features in their pictures than those in late childhood [$\chi^2(1)=13.63$, $p<.001$, $\phi=.27$]. There were no other significant associations. Children's narratives helped to clarify some, potentially biological, features which were not clear from children's pictures. For example, red eyes seemed to be associated with tiredness, as illustrated by Peter, *"Her eyes were red - sleepy - she didn't want to get up from bed - when she gets up it will be night-time already"* (Peter, male, age 6).

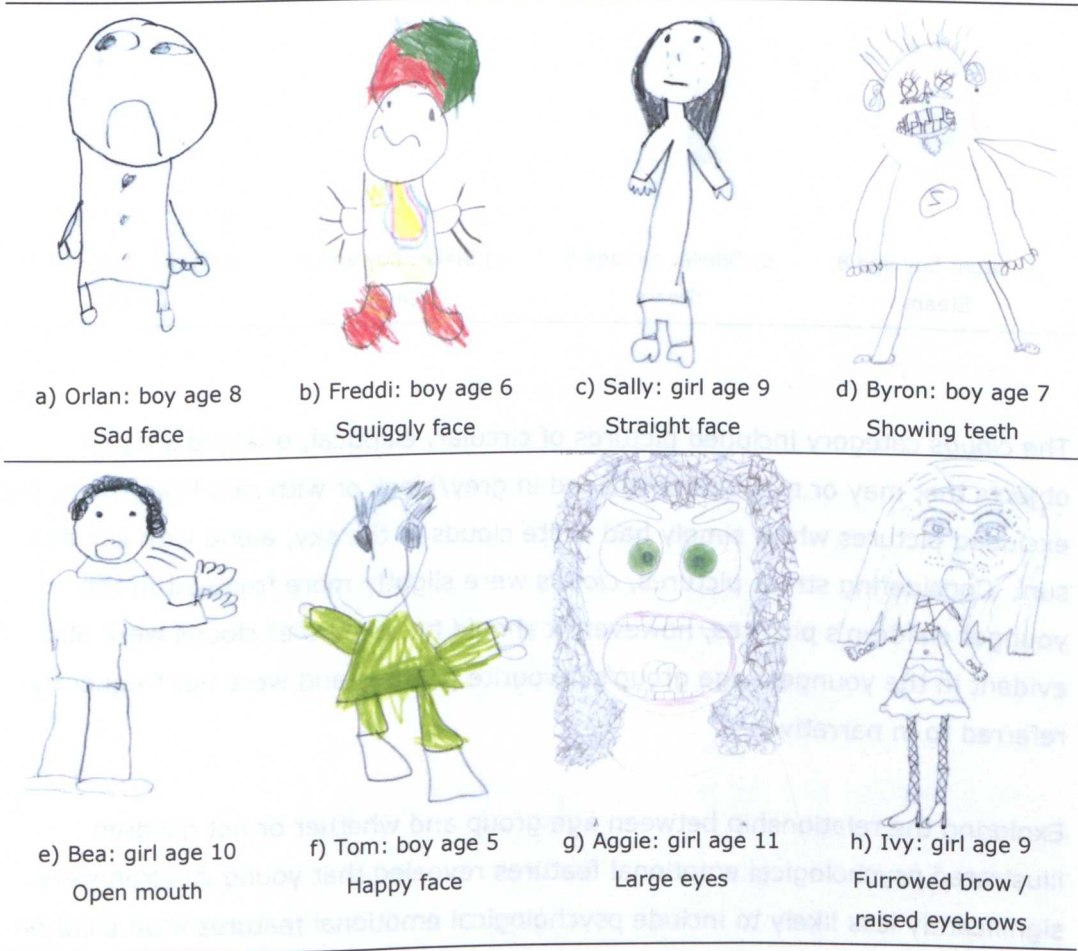
10.4.4.2 Psychological

The psychological category was further sub-divided into emotional, cognitive, and behavioural features.

Emotional

As illustrated in Figure 10.9, mouth expressions included: sad, squiggly, straight, showing teeth, open mouth and happy faces, additional facial features were large eyes (excluded from analysis), a furrowed brow and/or raised eyebrows.

Figure 10.9. Examples of Drawings Illustrating Facial Features

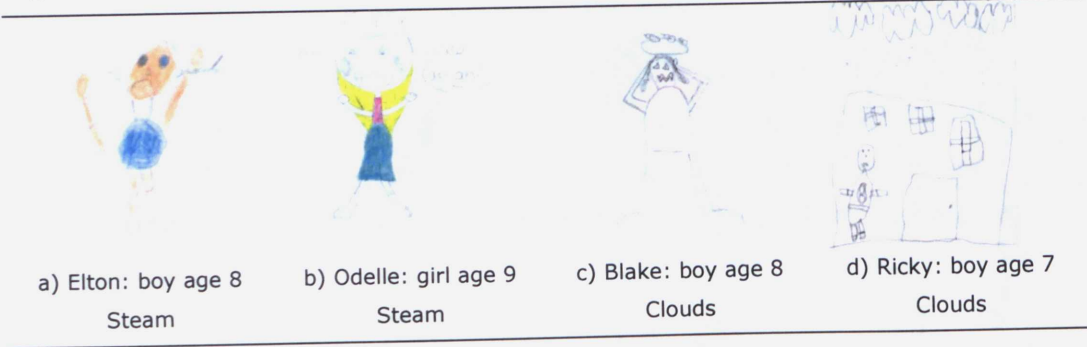


Children’s narratives often clarified how facial expressions represented emotions, for example: “*Because of her face, her mouth was straight, she looked really angry and she said she was stressed*” (Ivy, female, age 9).

Steam was only featured in the stress pictures, not in the favourite people pictures. Children displayed steam pictorially as lines or smoke coming from people’s ears or head (see Figure 10.10). Steam/smoke may represent emotions such as anger or frustration, or as one child commented, feeling non-human. As illustrated in the following quote:

"Well sometimes I get really really stressed because I don't really know why, but I feel like it feels like I'm not human all the time and it feels like I've got smoke coming out of my ears all the time" (Bridget, female, age 11).

Figure 10.10. Examples of Drawings Illustrating Steam & Clouds



The *clouds* category included pictures of circular, elliptical, or cloud shaped objects that may or may not be shaded in grey/black or with rain from them, but excluded pictures which simply had white clouds in the sky, along with sky and sun. Considering stress pictures, *clouds* were slightly more frequent in the younger children's pictures, however, it should be noted that clouds were also evident in the youngest age group's favourite pictures and were not frequently referred to in narratives.

Exploring the relationship between age group and whether or not children illustrated psychological emotional features revealed that young children were significantly less likely to include psychological emotional features than children in late childhood [$\chi^2(1)=16.86$, $p<.001$, $\phi=.30$]. There were no differences in middle childhood.

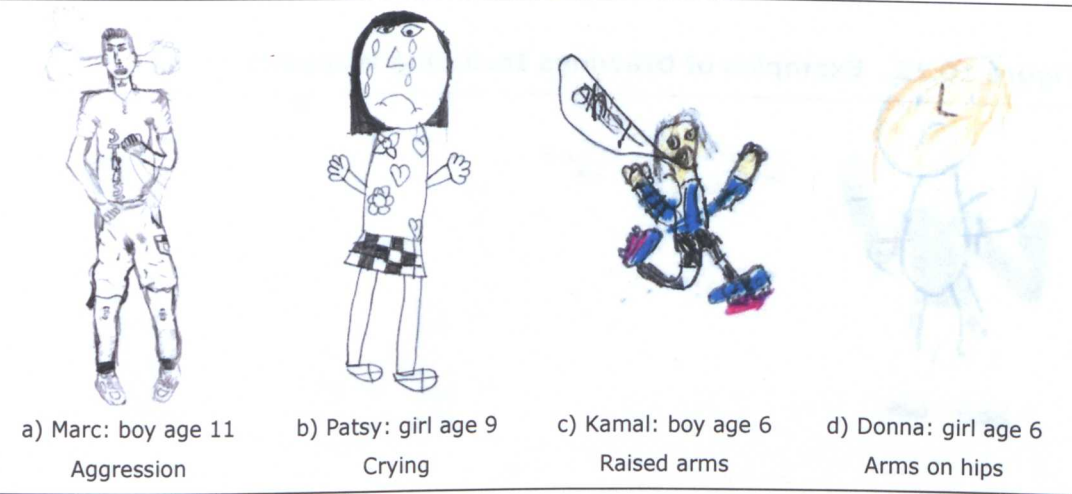
Behavioural

The psychological behavioural category included crying, aggression and raised arms, illustrated in Figure 10.11. Crying and aggression were only seen in the stress category. Raised arms were also evident in the youngest age group's pictures of their favourite people.

Some young children's narratives suggested that arm positions were other than what they had drawn, for example Donna said, *"My mummy is doing her arms*

like this [puts hands on hips] because she is stressed because she can't find it" (female, age 6). Her picture showed arms out to side (Figure 10.11d).

Figure 10.11. Examples of Drawings Illustrating Behaviours



Four boys in the oldest two age groups drew pictures which included images that looked like knives or weapons (Figure 10.12); three of these boys took part in the tell part of the study. From their narratives, it was clear that only one child perceived the knife as a weapon. One boy, Clive wrote on his picture "I am very very grumpy, I have got a knife" (see Figure 10.12b) and said,

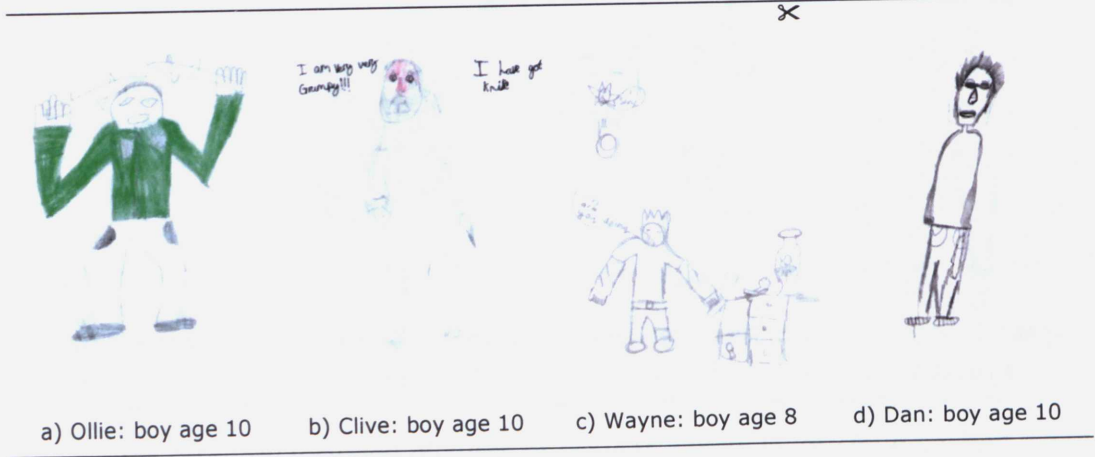
"My picture is of a man that can never get to sleep and that's why his eyes are red and he is just so stressed that he has got a knife and he takes it everywhere and he, one day he has just broke down and he wants to kill everyone so people people like [---]. I think he is lonely because no-one wants to know him and no one comes to his house" (Clive, boy, age 10).

The other two boys who depicted knives/weapons and talked about their drawings did not intend the images in their pictures to be seen as weapons. Ollie mentioned picking up a 'big stick with thorns' and breaking it when he was stressed, with no intention of this being used as a weapon. Wayne clarified that the knife was simply being used in the kitchen as a cooking utensil.

Considering all psychological behavioural features together, there was a significant association between age group and illustrating psychological

behavioural features. Children in early childhood were significantly less likely to draw a picture including a psychological behavioural feature than those in middle childhood [$\chi^2(1)=12.75$, $p<.001$, $\phi=.28$] or late childhood [$\chi^2(1)=22.76$, $p<.001$, $\phi=.35$].

Figure 10.12. Examples of Drawings Including Weapons



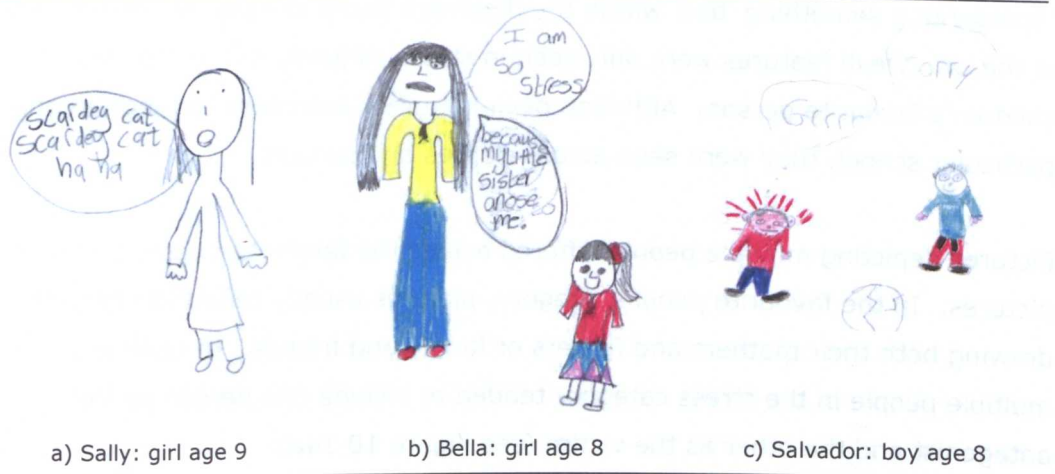
Cognitive

Speech bubbles were only seen in the stress category, not in pictures of favourite people. They included people saying things like 'I'm stressed', verbal utterances such as 'grrr or ahhhh!', as well as more complex statements giving explanations for why an individual was feeling stressed (see Figure 10.13). For example, Bella (Figure 10.13b) wrote that the older person in her picture was stressed "Because my little sister anose [annoys] me". Similarly, Neil (boy age 11) wrote about his recent SATs⁶, "I'm so worried about my sats [SATS] reasults [results]". Children's narratives tended to expand on these comments further, as illustrated by Neil's description, "It's me, I'm stressed because I'm quite worried about my SATs results [Interruption]. It's me about my SATs results. I don't know if I am going to pass or fail. I'm worried about that stuff".

The youngest age group of children were less likely to include speech bubbles representing cognitive thought in their pictures than children in middle childhood [$\chi^2(1)=27.83$, $p<.001$, $\phi=.41$] or late childhood [$\chi^2(1)=10.63$, $p=.001$, $\phi=.24$].

⁶ SATs are Standard Assessment Tests, given at the end of year two and year six in primary schools in England.

Figure 10.13. Examples of Drawings With Speech Bubbles

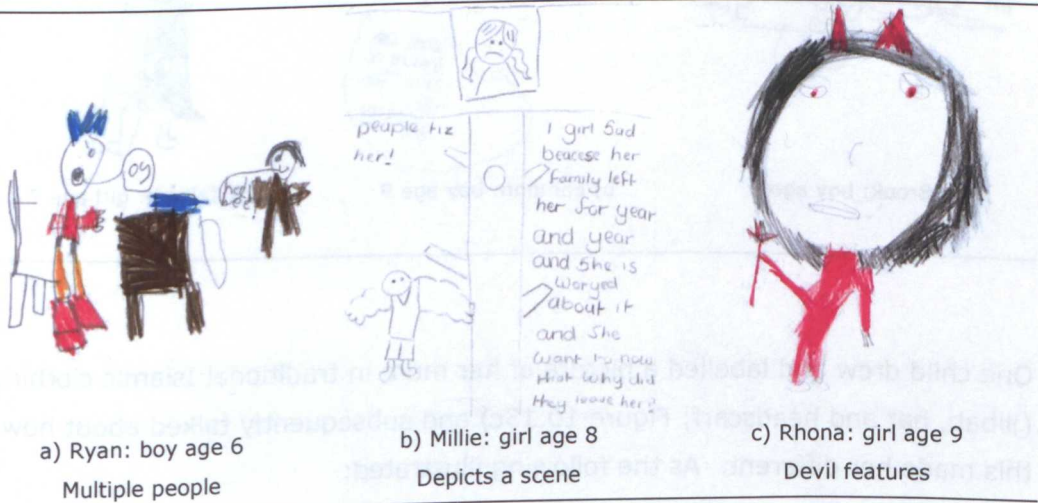


Taking psychological features together, 67.8% of children in the youngest age group included one or more psychological feature in their pictures compared to 88.8% and 94.1% of children in middle and older childhood respectively. Young children were less likely to draw psychological features than children in middle childhood [$\chi^2(1)=10.59$, $p=.001$, $\phi=.25$] or late childhood [$\chi^2(1)=21.73$, $p<.001$, $\phi=.34$].

10.4.4.3 Social

Social features included: drawing multiple people; depicting a scene illustrating more than just a person, such as drawing people with objects or events; and including any devil features, such as horns, tail or pitchfork (see Figure 10.14).

Figure 10.14. Examples of Drawings Illustrating Social Features

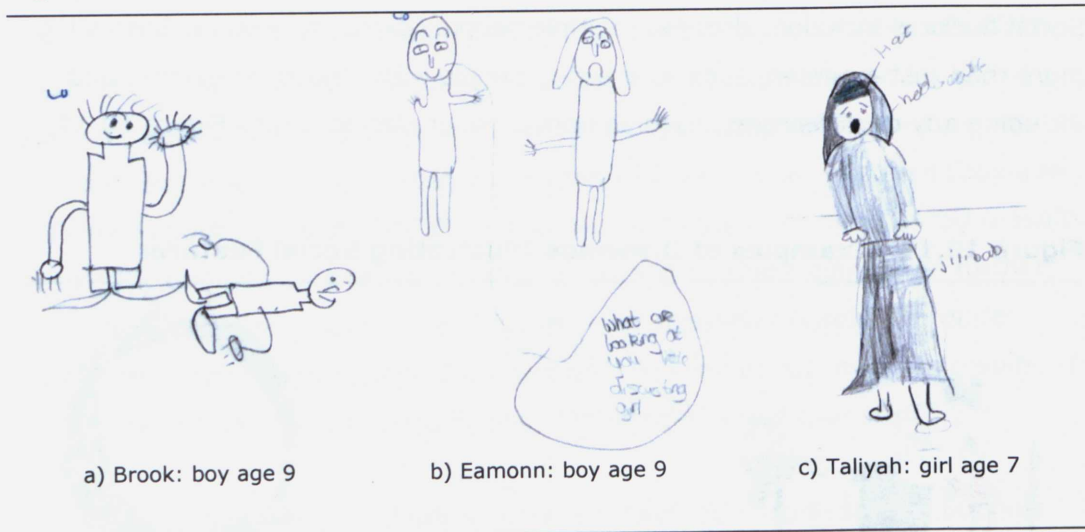


Devil features were categorised as social elements as they were interpreted as representing something 'bad' within the dominant social or cultural environment in the UK. Devil features were only seen in stress pictures, not in pictures of children's favourite person. Although devil features were most common in one particular school, they were seen across classes and schools.

Pictures depicting multiple people differed across the favourite people and stress pictures. In the favourite people category, pictures usually reflected children drawing both their mothers and fathers or family and friends. In contrast, multiple people in the stress category tended to include one person as the antagonist and the other as the victim (see Figure 10.14a).

Some children, particularly those in middle childhood, used their imaginations to picture traumatic stressful situations that they had not explicitly seen, but were imagined, for example, families leaving or being thrown out of home (see Figure 10.14b). A number of children depicted scenes including physical bullying or verbal name calling (Figure 10.15), as was also illustrated in Sally's picture (Figure 10.13a) where she wrote "Scardey cat, scardey cat ha ha".

Figure 10.15. Examples of Drawings Illustrating Bullying



One child drew and labelled a picture of her mum in traditional Islamic clothing (jilbab, hat and headscarf; Figure 10.15c) and subsequently talked about how this made her different. As the following illustrated:

"[This is a picture of] my mum cause she is stressed a lot of times. There are different religions and different clothes and some days you do feel stressed to find out what others-, what they are saying about your clothes and your religion" (Taliyah, female, age 7).

Children in early childhood were significantly less likely to include any social feature in their pictures than those in middle childhood [$\chi^2(1)=50.30$, $p<.001$, $\phi=-.55$]. Children in middle childhood were more likely to include social features than children in late childhood [$\chi^2(1)=42.02$, $p<.001$, $\phi=-.48$].

10.4.4.4 Other

As may be expected, the happy facial expression decreased with increasing age in the stress pictures and vice-versa in the pictures of children's favourite people. Considering just the stress pictures, there was a significant association between age and whether or not children drew a happy face. Children in early childhood drew happy faces more than those in middle childhood [$\chi^2(1)=16.85$, $p<.001$, $\phi=-.32$] or late childhood [$\chi^2(1)=28.58$, $p=.001$, $\phi=-.39$].

A similar relationship was seen in pictures with no signs of stress. The youngest age group of children drew more pictures with no signs of stress than those in middle childhood [$\chi^2(1)=19.48$, $p<.001$, $\phi=-.34$] or late childhood [$\chi^2(1)=43.05$, $p=.001$, $\phi=-.48$].

In addition to the 22 main codes, one or more raters felt that additional features were also important. These features are listed below, along with the number of children who depicted this feature in his/her picture. $n=5$: use of the colour red, closed eyes; $n=4$: tongue out, knife; $n=3$: clenched fists, messy hair, small eyes, shaking, black eye, tattoos/body piercings/body building; $n=2$: alcohol or smoking, bags under eyes, large mouth, broken heart, red eyes, shrugging; $n=1$: various arm positions (in front of body, to chest, to eyes, on hips, out to side, head in arms), tiredness, breathing fire, fire surrounds body, blood shot eyes, stamping feet, crosses in eyes, pulling hair, running, jumping, tense body, large hands, scars/wounds on face.

Children's narratives help to clarify why children drew certain objects on their pictures. For example, one child who had included flames around her picture stated this was to illustrate how she felt when stressed:

"When I look at that picture, it reminds me of the inside of me when I get stressed - inside when my blood starts really boiling. I can feel this spark in me when it starts and then it just turns into a flame, when it goes off"
(Paige, female, age 11).

It was also clear why some children had included hearts on their pictures. These hearts seemed to represent the conflicting opinions held by children. One child seemed to want to clarify that she also loved the person who made her stressed, *"My sister took my my my skateboard wheel and then I fell down. I've done some hearts 'cause sometimes my sister makes me laugh - and kisses"* (Whitney, female, age 5). Another child stated, *"The hearts are like she is a bit loving and a bit not loving, the red bits are for the loving and the brown bits for the not loving"* (Wilhelmina, female, age 7).

Children were able to discuss movement in their narrative, which helped to clarify ambiguities in pictures. For example:

"That is the steam coming out of my ears. That is when it goes 'grrrr'. I forgot to put the foot, you see that foot, I'm stamping on the ground. I am shaking my hand up and down, that is why, I am doing this [rubbing hand up and down on leg]" (Daniel, male, age 7).

10.5 Discussion

This study explored whether there were differences, both in terms of content and specificity of detail, in children's pictures across age groups, SES, and genders. The study has highlighted that some children across all age groups have heard of stress and feel able to represent this pictorially. Young children's pictures differed from older children's pictures, with many associations seen between children in early and late childhood and some associations between these groups and those in middle childhood. This section will consider the possible interpretations of these findings, but firstly, the frequency the children drew stress and favourite people pictures will be discussed.

10.5.1 Frequency of stress and favourite people pictures

The pictures and narratives in this chapter show that some children across all age groups have experience of stress. In the present study, children who had not previously heard of stress were asked to draw pictures of their favourite person which allowed between-participant comparisons to be made between

stress and favourite people pictures. The main people that children described when talking about their favourite people were broadly similar to those identified in previous research and were, on the whole, family and friends (Tatlow-Golden & Guerin, 2010). Although no child verbalised it, children may have had difficulty in deciding who their favourite person was within their family and/or friendship circles; this may have potentially caused stress for some children, although there was no evidence of this.

The comparison of favourite people and stress pictures was particularly useful in the youngest age group where many pictures of favourite people were drawn. Future research could ask all children to draw a picture of their favourite person *and* a stressed person to investigate the within-participants differences between stress and favourite people pictures. As this may present problems for children who have not heard of stress, it would be necessary to ask only children who have heard of stress to take part.

The reasons that children's pictures of favourite people sometimes contained features which may be interpreted as signs of stress, may be some children drew their favourite person sad or upset or perhaps they had seen peers drawing pictures in this way. Copying also occurred, as illustrated in the results section, with some children copying their peers who had drawn stress pictures. It may also be that codes were misallocated. It is possible that the youngest age group of children were allocated red faces, when they were attempting to colour a face as pink as red faces were often the only stress feature. In contrast, in older children's pictures, red faces often accompanied other signs of stress.

Although some categories were seen across stress and favourite people pictures, others (steam, crying, aggression, devil features) were only seen in the stress pictures. This suggests that these features are indicators of children's perceptions of stress. Speech bubbles were also only seen in the stress category. Although it may be that children drawing stress pictures were more likely to wish to clarify actions, behaviours, or thoughts in text than children drawing their favourite person, rather than this being an indicator of stress per se. From speech bubble text, it was often possible to ascertain what the child perceived as the stressor, thus text often provided further insight into the child's world. A draw-and-tell technique was selected for the present study rather than draw-and-write, because it would not be appropriate to ask 4-year olds to write text. However, future researchers may ask young children to describe their pictures and do the writing for them or start with an older sample.

Looking at the frequencies of stress and favourite people pictures, less than half of the children in reception classes had heard of stress. The frequency of having heard of stress, and subsequently drawing a stress picture, generally increased with age. Considering the individual school year groups, there was a slight decrease in the number of children who drew stress pictures in year one, compared to year two. It is not possible to identify why this occurred in the present study, as one would expect a linear increase. However, certain assumptions may be made. It is possible that the children in reception classes were more likely to give a response bias, providing an affirmative response when asked if they had heard of stress, if they have not understood the question.

Research has shown that children (aged 4-5) are capable of giving responses to yes/no questions, providing that they are comprehensible, but may give biased answers when questions are incomprehensible to them (Fritzley & Lee, 2003). This may also reflect why a greater number of pictures from children in the youngest age group included happy facial features with no signs of stress. That is, although children stated that they had heard of stress, they actually had no understanding. This was confirmed, to some extent, in the tell part of the study. Nine of the ten children who drew pictures of his/her favourite person, when they had initially stated that they were going to draw a stress picture, were in early childhood. In addition, fewer children in early childhood were able to talk in detail about their stress pictures. Alternatively, it may be that very young children had heard others state that they were stressed, but this concept had not been explained to the child. It is possible that young children may have indirect or direct experience of stress, but, due to their lack of drawing abilities and stage in linguistic development, are not able to articulate the meaning of stress to others. If this were the case, this would have implications for all those involved with children's welfare, in that, carers have to be particularly aware that young children may have awareness of stress but are not be able to communicate this to others.

There was an increase in the number of children drawing stress pictures at around 7-years of age. There also appeared to be a further increase at 10- to 11-years of age, as all children in the oldest class group (year 6) drew stress pictures. A similar pattern was seen in the narratives, as the length of narratives increased dramatically at these ages. It may be argued that older children's narratives were longer simply because these children possessed greater literacy skills, enabling them to express their perceptions of stress better

than younger children. Alternatively, the longer narratives may indicate increased understanding of stress. Older children's responses were more appropriate and reflected knowledge of a greater number of features and domains (biological, as well as psychological and social). The ages of these key shifts is in line with the ages within Piagetian theory, which purports that children move from pre-operational to concrete operational thinking at approximately 7-years of age and then onto formal operational thought at around 11-years of age. This suggests that there is partial support for a developmental shift in understanding at these ages; however, not all Piagetian theory has been supported.

Children, across age groups, were able to draw pictures of other people being stressed, as evidenced by children labelling pictures as 'mum' or 'dad'. This suggests that young children do have an understanding of others' emotional states. This does not correspond to Piagetian theory which proposed that pre-operational children are egocentric and only able to see things from their own perspective. However, it does fit in with research on children's understanding of emotions (e.g. Dunn & Hughes, 1998). It would be useful, in future research of this nature, to get children to write on their picture the name of the person they have drawn a picture of, which will enable further analysis to take place.

The fact that some young children had heard of stress and were able to draw appropriate pictures also contradicts Piagetian theory that children under 11-years of age should not be able to reason about abstract concepts. The present findings corroborate previous research which has highlighted that young children can accurately describe some abstract processes (as discussed in Chapter 3). For example, Myant & Williams (2005) found that older children (aged 11-12) were able to discuss the abstract process of decay in detail, and even young children were aware of the physical/behavioural factors that may cause toothache, for example, not brushing one's teeth. It is possible that young children do not perceive stress as an abstract concept, but rather as Piagetian theory suggests, children rely on perceptual reasoning (what they can see and hear). That is, young children may have seen and heard others being stressed and are able to reason about this perception and thus depict the behaviours/emotions associated with stress in these terms. This leads to discussion about the broad categories of stress identified in the present study.

10.5.2 Higher-order categories

The major categories of response were grouped into biological, psychological, and social higher-order categories; these are in-line with the biopsychosocial model. The majority of codes fitted in these higher-order groups, although there was overlap across categories. For example, teeth clenching could be viewed as a behaviour or it could be that the child was trying to portray an emotion, such as feeling frustrated. Similarly, it is possible that children were trying to portray the emotional consequences of stress, but that these features may also have social elements. For example, one child stated that her mother said that she turned into a little devil when stressed and tried to illustrate this! Consideration of the overlap across categories is important in terms of the biopsychosocial model, but does not necessarily limit the findings of the study. There was substantial agreement across raters in terms of the inter-rater reliability of individual codes within the biopsychosocial higher-order categories.

Associations were found between the youngest and oldest age groups of children who included biological features. This fits into previous research which identified that young children have an awareness of biological concepts but do not understand the underlying processes (Kalish, 1997). It also fits into a naïve theory of biology in that younger children have specific knowledge of features, but do not integrate these into a coherent body of knowledge until middle or late childhood (Siegal & Peterson, 1999b). One of the problems in the present study is that drawings were limited to aspects which can be illustrated. Many biological features, such as increases in blood pressure, are difficult to illustrate. Therefore, it is important to triangulate these findings with an alternative method of data collection.

A pattern was apparent looking at the chi-square results across higher-order categories. Many significant associations were evident between the youngest and oldest age groups of children, but associations between these children and those in middle childhood were weaker. This may be because there is a gradual developmental increase in understanding from early through to middle childhood and from middle to late childhood, rather than a specific change in understanding occurring at any one age. However, there does appear to be some specific differences across age groups, particularly with regards to social elements.

Despite being asked to draw a picture of a person, many children in middle childhood depicted social scenes including multiple people. Children in middle childhood may have felt it necessary to explain and contextualise their reasoning about stress more so than younger children, who may not be able to do so, or older children who have a more comprehensive understanding of instructions. Alternatively, the higher incidence of social elements in middle childhood may reflect the change in social development during this period. Children move from beginning school and developing the initial stages of peer interaction in early childhood, to developing dyadic peer friendships as they progress through the early school years. Children's social interactions involving peers increase from 10% to 30% from early to middle childhood (Rubin, Bukowski, & Parker, 1998). In addition, during middle childhood, children's interactions with peers are related to their subjective well-being and how much they are liked by others (Denham, Wyatt, Bassett, Echeverria, & Knox, 2009). Thus, in the period of middle childhood, social relationships, friendships and group interaction, as reflected in the drawings of scenes and multiple people, may be particularly prominent aspects of daily life for these children. It may be that an increase in social relationships leads to more situations in which a child may be stressed or see others who are stressed.

Some children drew pictures of school in their scenes. This may be because school is a large part of children's lives or because the context in which the data were collected influenced pictures (Backett-Milburn & McKie, 1999). Bullying was also common in some children's pictures of scenes. In previous research exploring children's perceptions of bullies using drawings, it was found that children perceive bullies as muscular, with facial hair and scars, wearing jewellery, carrying weapons and wearing brand named clothing (Bosacki, Marini, & Dane, 2006). Evidence of all these features were seen in the children's pictures, both those involving bullying and otherwise. Further consideration of bullying, along with other issues of child protection, is given in the overall discussion in Chapter 12. Another possible concern, identified in the present study, was knife crime although this was clarified (through the narratives) as only really being an issue in one picture. Nevertheless, it is possible that the draw-and-tell technique would be a useful way to begin to talk to children about issues such as knife crime.

Children in middle and late childhood tended to use their imaginations in pictures and several children drew traumatic situations in their scenes. It was also

noted, in the narratives, that some children worry about these situations happening to them. This was in addition to real situations that other children worried about (such as bullying and being different) which were also depicted. Children's understanding of other people, as well as their own differences from others, changes substantially during the Primary school years (Rubin et al., 1998), which may explain why one child depicted her cultural clothing. This may also reflect the differences between the child and the researcher (a White British female). It may be that this would not have been drawn had the researcher shared the child's ethnicity/culture.

In some ways, children drawing pictures of scenes were useful as the social scenes enabled the researcher to gain greater insight into children's perceived stressors. However, it also made comparisons across pictures more problematic, particularly, where multiple people had been drawn. Although it was felt that the wording of the question was appropriate and specifically asked children to draw a picture of "*Either yourself when you have been stressed or another person who you have seen stressed*" it may be that further clarification of the requirements to draw only one person should be stated in future research. A number of children also just drew faces. Asking children to draw the whole figure, as is common in drawing research exploring emotional indicators of stress (e.g., Carroll & Ryan-Wenger, 1999), may improve this in future research. Having a basic outline of a human figure, such as in the 'inside the body' studies or even simply including the outline of the head and torso, so that children can draw in arms, legs and additional features may also overcome this problem in future research.

Most children in the present study reported that they enjoyed drawing pictures; it was noted that, for some children, the drawing process was cathartic and it acted as a vehicle for discussion. It would be interesting to investigate how the draw-and-tell research process influences children. A number of additional features were also noted by the other two coders as potentially being indicators of stress. Some of these features were coded within the main dataset, for example, knives and clenched fists were interpreted as signs of aggression. Some other features were clearly subjective interpretations, such as the use of the colour red. Other features may become more apparent with a larger dataset. It is, nevertheless, accepted that these other features may be representations of stress for some children and may be considered in future research. Interestingly, some of the additional features correspond with the

emotional indicators on human figure drawings (Koppitz, 1968). For example, large hands (bigger than head) were depicted in one picture. Although it is acknowledged that features such as teeth being drawn are also considered projective indicators of emotional distress, in the present study, drawings were taken at face value and were not projectively analysed. The use of projective techniques is a contentious area of research; nevertheless, this may be an avenue for the future study of stress, as some children did include emotional indicators in their pictures.

10.5.3 Evaluation of the study

One of the study's major strengths is that it included a relatively large sample of children from a selection of schools in different counties of the UK. In addition, the analysis was conducted by three raters from different backgrounds to ensure that children's work was considered from multiple perspectives (Malchiodi, 1998). This resulted in a comprehensive evaluation of children's perceptions of stress depicted through drawings and narratives. However, there were also limitations of the method. This section considers how the design and execution of the study limits the extent to which findings can be generalised. The section begins by considering the differences in children's drawing ability and goes on to consider differences within the sample, specifically looking at the influence of gender and SES. Finally, the effects of the subjective nature of analysis will be evaluated before drawing conclusions from the research.

10.5.3.1 Children's drawing ability

Although young children were able to explain their illustrations to the researcher verbally, three of the youngest children's drawings had to be excluded from analysis, as pictures were indeterminable. Children's pictures, that were included in the analysis, clearly represented different stages of drawing ability. Drawings from children in early childhood were both qualitatively and quantitatively different from older children's pictures. Some children in early childhood produced tadpole figures and/or included arms protruding from heads. Children in early childhood tended to draw figures in a particular position with arms and legs held away from the torso, with only a few main (canonical) features. This is in line with children's drawing development. However, broadly categorising children into age groups is not necessarily useful, as previously highlighted by Punch (2002). It was clear from children's illustrations that children of a particular age are not a homogenous group and that diverse drawing skills were apparent even within age groups. Nevertheless, in future

research of this nature, particularly if pictures are to be analysed, it may be more appropriate if the sample only includes children aged 6-years and above. From the data in this study, it was found that children over the age of 6-years tend to have mastered the fundamentals of drawing a human figure. This is to be expected given previous consideration of children's drawings (e.g., Koppitz, 1968). The differences in drawing ability would, therefore, impact less on the findings if only older children were included.

Some children in early childhood were able to draw stress pictures, which were more likely to include no visible signs of stress and draw a happy face than children in the upper age groups; this may be explained by nine of the children actually revealing in their narratives, that they had drawn their favourite person rather than a stressed person. Younger children's pictures were also simpler, displaying fewer features than older children's pictures. There were statistical differences in frequency of occurrence of the main features identified, particularly between the youngest and oldest age groups of children. However, it is known that children include more features in their drawings as they increase in age (Cox, 1993). It may simply be that older children demonstrated greater understanding of stress because their pictures were more detailed.

Taking one code, showing aggression, some children in middle and late childhood drew features which may be considered aggressive, including people holding fists aggressively and people with weapons. It may be that older children depicted this better than younger children because of their greater ability to draw, as illustrated in the picture by Marc (11.10a), who demonstrated the action of an arm moving into the raised fist position. It is known that children under the age of six rarely display arm positions other than out to the side (Cox, 1993). Although less artistic children also found ways to demonstrate aggression, showing acts of aggression may be too complex an attribute for younger children to draw. This was further illustrated by Donna (11.10d) a 6-year old child, who demonstrated that, in her picture, mummy had her hands to her waist, when in the drawing the arms were actually out to the side; this illustrates the importance of the 'tell' part of the research. Several researcher's (e.g., Greig, Taylor, & MacKay, 2007; Backett-Milburn & McKie, 1999) note that drawings are mediated by children's fine motor skills and conceptual development, and acknowledge that these factors need to be considered in the analysis. It may be that age differences noted are actually methodological artefacts that result from either children's problems in drawing or

misunderstanding/misinterpretation of the questions. That is, it may be that younger children simply have difficulty in drawing detailed pictures and thus draw a less complex picture with fewer elements. This leads the researcher to question whether the drawings were valid indicators of children's understanding of stress. That is, although the study purports to assess children's understanding of stress through drawings, whether the pictures actually demonstrate this is questionable.

Age differences relating to self-efficacy may also limit the findings. It has been noted that drawings are ineffective when used with children who are self-conscious about their drawing ability (Punch, 2002). Although other research has shown that children who were embarrassed about their pictures reported as much information as those who were not (Patterson & Hayne, 2009). In the older age groups of children, in the present study, many children commented that they liked having the chance to draw in class again, as they often did not have time for this anymore. In addition, no children questioned whether their drawings would be marked, as has been found in previous research (e.g., Pridmore & Bendelow, 1995), however, a few older children commented that they 'could not draw' or 'could not draw well'. This corroborates previous research which found that older children are more likely to evaluate their drawings or drawing ability (Kortessluoma, 2004; Ryan-Wenger, 2001). Efforts were made to overcome this in the present study, as, whenever a child reported that he/she was concerned about his/her drawing ability, the researcher endeavoured to assure him/her that how they drew did not matter. Nevertheless, children who were particularly conscious about their drawing ability may not have taken part in the study.

10.5.3.2 Differences within the sample

One of the research questions asked whether children's perceptions of stress differed across schools that ranged in SES. No substantial differences were found across schools. Although the number of incidents of bullying was more prevalent in one school, in a particularly socially deprived area (according to the English Indices of Deprivation), this was not apparent from children's drawings. Similarly, no gender differences were found. The lack of gender differences supports previous research exploring children's understanding of health and illness (Charman & Chandiramani, 1995; Fox et al., 2010; Normandeau et al., 1998), but contrasts with research that has found that girls write more than boys (Pridmore & Bendelow, 1995). This may be because writing was not

specifically requested in the present study and similar numbers of boys and girls included text boxes; if writing was enforced, gender differences may be found. It is possible that a larger gender or socioeconomic effect would be found with a larger sample size as some of the schools, particularly the private school, only contributed a small number of children due to the small class/school size. Although, a power calculation was conducted and the number of children in each age group was sufficient for analysis, the sample size was not sufficient for further sub-division within age groups; this could be improved using a larger sample in future research. It would also be useful to ask parents about other factors which may influence the findings such as whether English is a first language. Further consideration of the schools, SES and speaking English as a first language is considered in the overall discussion section (Chapter 12).

10.5.3.3 *Differences across schools*

The main drawing element of the study was set in children's classrooms. The classroom context may have led to problems such as copying, a difficulty noted by other researchers (e.g., Knighting et al., 2011; Oppenheimer, 2005). However, it was important for children to be familiar and comfortable in their environment and conducting the research in their classroom allowed this. As mentioned in Chapter 4, the tell part of the study was conducted in various settings within schools (the corridor, back of classroom, a separate room, and so on). Children's responses may have differed in these settings. In addition, the type of work that children were doing in the class setting may have led to differences in the number of children wanting to take part in the research. The lower response rates from younger children may be because they were engaged in 'fun' activities, playing with sand, water, making crafts, playing outside or in a made up spaceship! Older children were more likely to be studying specific topics related to the national curriculum. It may be that older children appreciated the release from classwork (Mayall, 2000) and were more likely to wish to engage in the research.

It has been highlighted that children do not feel able to withdraw from research that takes place in a classroom setting (Pridmore & Bendelow, 1995). This was not a problem in the present study and children were able to, and did withdraw from all aspects of the study. This was essential in the present study due to the potentially sensitive nature of stress. This may explain why the response rates within classes were lower than other research using the draw-and-write technique. In one case the researcher did have to intervene when a well-

intentioned teacher stated that he '*expected to see all children engaging in this important research*'. In this case, an announcement was made that taking part was voluntary and the researcher spoke to each child to check that he/she wanted to take part. The fact that so many children did not take part in the study (up to 50% in some classes) may mean that the sample is self-selecting. It is possible that the children who did not take part had greater or lesser experience of stress than those who opted to take part.

10.5.3.4 Subjective nature of analysis

The final key point to consider is that throughout the analysis of drawings subjective judgements were made. Informal interviews asking children to talk about their pictures, were used to verify key features in drawings; these allowed children to interpret their own data and their narratives were useful to gain further insight into children's perceptions of stress. Understanding of pictures, particularly from the youngest age group of children was enhanced through their narratives, as some pictures were somewhat ambiguous. However, not all pictures had accompanying narratives and the drawings were initially analysed separately.

Some researchers (e.g., Backett-Milburn & McKie, 1999) would argue that the analysis of drawings alone is problematic. Sewell (2011) warns of the difficulties in analysing the draw element alone. Similarly, Backett-Milburn & McKie (1999) advise against the over-interpretation of drawings because of their subjective nature and Pridmore & Bendelow (1995) highlight that this is particularly important when pictures are symbolic or abstract. It may also be argued that analysing only children's drawings moves from research being 'with' children to research being 'on' children (Clark, Prosser, & Wiles, 2010); which goes against the ethos of this thesis. The researcher put a great deal of consideration into whether to analyse the full dataset of pictures without interviews, taking into account the ethical implications of collecting data which is not used (Guillemin & Gillam, 2004).

A decision was made to analyse the pictures and narratives separately in order to utilise the whole of the picture dataset and ensure that every child who wanted to contribute to the research did so. In an attempt to reduce the subjectivity, three raters were used in the analysis which tried to rate objective features. The features which were deemed by raters to be ambiguous (e.g., hair-on-end) or had low inter-rater reliability (e.g., large eyes) were removed

prior to analysis. Nevertheless, it is accepted that the true interpretation can only be provided by the child. Although it was accepted that the picture analysis was subjective, *post hoc* consideration of the transcripts, from those children who provided narratives, does highlight that the main features that children mentioned were the features identified through coding. Nevertheless, it is possible that the inferences that the researcher has made about the picture is not what the child meant by the drawing. For example, one assumes that children did not expect smoke or steam coming from ears or developing devil features to be seen literally, as biological consequences of stress, but rather these were taken as emotional representations of stress. However, exactly what each child was trying to illustrate is not definitive. The children's pictures which were accompanied by verbal descriptions may reflect a more valid interpretation of childhood perceptions of stress than the pictures alone.

Despite all these potential limitations associated with the drawings, there were also strengths. In addition to providing a way to express their knowledge pictorially, the drawings were also used for another purpose – to develop a rapport with children. In this respect, the study was very effective. The pictures undoubtedly acted as an ice-breaker in the interviews, enabling the researcher to communicate quickly with children, across all age groups. It was clear that children were keen and able to talk, in detail, to the researcher more readily than in the previous interview study. Therefore, when not looking to analyse the pictures, the draw-and-tell technique proved to be an effective way of developing a rapport with child participants across all age groups and may be a useful approach for future research exploring children's understanding of other concepts.

10.6 Overview of Chapter

In summary, the draw-and-tell research technique was seen as a participatory, non-invasive, and non-confrontational method which allowed children to take an active role in the research process. The findings from the study have provided some insight into children's perceptions of stress and show that some young children (aged 4-6) and many older children (aged 7+) have an awareness of stress. Although the drawing analysis was subjective and possibly presented an adult's perspective of childhood stress, the narratives obtained from some children provided an additional way to tap into children's understanding of stress, and broadly reflected the themes identified in the pictures. There were clear age differences in children's pictures although it is not possible to clearly

state whether these were merely an artefact of the method, as children's pictures inevitably become more detailed with age. From some of the older children's pictures, it was possible to identify the types of things that children found stressful. No gender or socioeconomic differences were found in any categories.

The results of this draw-and-tell study, exploring children's understanding and experience of stress, leads to several avenues for future research. Future research could ask all children to draw a picture of their favourite person and a stressed person to investigate the differences between these. Studies may also consider having a blank figure, at least the head and torso for children to add arm and leg positions and facial features. This would eliminate the problems in the present study of children drawing scenes multiple people and may make comparisons across pictures easier. It would also be interesting, in future research, to consider how children's opinions and descriptions differ from adult's perspectives. This may further inform our understanding of childhood stress, particularly whether children, at age 11, have as comprehensive an understanding as adults or whether understanding continues to develop through adolescence. This in turn may present a further avenue for research, exploring adolescent's understanding and experience of stress. To the best of the researcher's knowledge, there is no previous study exploring children's perceptions of stress using a draw-and-tell technique. This study, therefore, adds to the body of research on childhood stress. The draw-and-tell technique was an effective way of developing a rapport with children prior to interviewing. In conclusion, both aspects of the draw-and-tell approach were useful for exploring children's experiences of stress. The findings from the analysis of pictures must be considered in light of the subjective nature of the analysis. Nevertheless, drawings were useful to develop a rapport with children and were useful as a starting point for further questioning. The findings from the subsequent interview are presented in the next chapter.



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11. CHILDREN'S AND ADULTS' CONCEPTUALISATION AND EXPERIENCE OF STRESS

11.1 Abstract

Background: This study used the child interview data, obtained after the draw-and-tell study, along with survey and interview data from adults to explore and compare children's and adults' conceptualisation of stress, their experience of stress and possible coping strategies that they or others may use.

Method: A face-to-face interview method was used with all children ($n=182$, aged 4-11) and 20 adults (aged 27-70; $M=47.85$, $SD=14.09$). A survey was used for a further 71 adults (aged 20-62; $M=37.01$, $SD=11.34$). Questions asked about conceptualisation and experience of stress and coping with stress.

Findings: Both children and adults conceptualised stress within a biopsychosocial framework. Children's understanding of stress showed a developmental trend, increasing in complexity and incorporating more domains with rising age. Many young children (below 7-years) had an awareness of the behavioural and emotional aspects of stress. At approximately 7-years of age children's understanding began to also incorporate social and cognitive domains, and around 9-years of age additionally included biological aspects. Nevertheless, children's understanding, even at 9- to 11-years, was different to adults' conceptualisation of stress. Most children, across all age groups were able to name coping strategies to manage stress, although some children used maladaptive coping when faced with direct stress.

Conclusion: Some children, across all age groups, had experience of stress. The findings have implications for health and educational professionals in terms of teaching coping skills to young children.

11.2 Introduction

11.2.1 Background

As reported in the background section of this thesis (Chapter 3), young children, in Western cultures, begin to explain emotions between 3- and 5-years of age (Vinden, 1999). Research has demonstrated that 4-year old children are able to explain both their own and other people's emotions, suggesting that children's understanding of emotions is related to their observations and experiences of others (Dunn & Hughes, 1998). Further research has demonstrated that children's level of understanding of basic emotions, generally reaches adults' level by the age of 6-years (Vieillard & Guidetti, 2009).

A further body of work has explored children's understanding of health and illness, however, until recently, there has been a paucity of research exploring children's understanding of psychological illnesses. Two exceptions to this are Charman & Chandiramani (1995) who considered children's understanding of physical illnesses and depression and Fox, Buchanan-Barrow, & Barrett (2007, 2010) who expanded the psychological illnesses further to include anorexia nervosa and dementia. Taken together, the research suggests that some young children are able to provide coherent explanations of psychological illnesses and have some awareness of the mind-body distinction (Kalish, 1997).

Within the health and illness arena, there is also a lack of research, exploring how children's understanding compares to adults' understanding. Early research considered children's and parents' explanations of health and illness (e.g., Campbell, 1975; Mechanic, 1964; Ross & Ross, 1984) and demonstrated that children do not simply report their parents' explanations of illness. In a recent Chinese study exploring the causes of illness, researchers asked 3-, 4-, and 5-year old children: "*Why do people get sick?*" and "*Under what conditions do people get sick?*" (Zhu et al., 2009). Zhu and colleagues compared children's verbal reports with college students' (aged 19-22) written answers to the same questions. The researchers coded explanations into five categories: psychogenic (emotional events or states), biological, behavioural, symptomatic, and other/irrelevant. They found clear differences in children's and adults' responses. Children's explanations focused within the behavioural and symptomatic categories, with older children mentioning biological factors more than younger children. Adults' explanations tended to fall within biological and psychogenic categories. No children mentioned psychogenic causes of illness. The authors also compared children from urban and rural backgrounds and found that children's explanations differed across groups. Children from higher SES backgrounds provided more complex 'adult-like' responses. The authors acknowledge that there may be cultural influences on understanding within this study, because traditional Eastern medical practice (e.g., Chinese medicine) differs from Western practice. Nevertheless, this interesting study found clear differences between children's and adults' perceptions of illness.

11.2.2 The present research

The results from the preliminary research studies presented earlier in this thesis (Chapters 5 to 9), indicated that some young children do have an understanding of stress and are able to discuss the concept. Children's understanding of stress

appeared to develop with increasing age and became more multifaceted. However, it was not possible to make detailed comparisons across age groups due to the small sample size. The present study aims to build on the results from the preliminary interview study (Chapter 7), using a larger, more representative, sample.

Following the draw-and-tell study (Chapter 10), children were invited to take part in a semi-structured interview; this chapter presents the findings from this interview. In addition, adults' understanding of stress, ascertained from an online survey and face-to-face interviews, is considered and compared with children's explanations. As in the previous studies, the overarching research aim is to explore 4- to 11-year old children's understanding and experience of stress and the coping strategies that they may employ, or be aware of, in their daily lives. The research questions were again split into three areas reflecting conceptualisation, experience, and coping with stress.

11.3 Method

11.3.1 Design

This cross-sectional quasi-experimental study explored child and adult perceptions of stress and coping. Children were split into conditions according to school year group, resulting in three age groups of children (aged 4-7, 7-9, and 9-11); these groups were compared to adult participants (aged 18 and over). Gender and socioeconomic background were also investigated as possible contributors to knowledge and experience.

Participants were allocated a knowledge score (none, poor, limited, extensive) depending on the number of domains that they specified. Possible domains were: (a) biological, (b) psychological – behavioural, (c) psychological – cognitive, (d) psychological – emotional, (e) social, and (f) other. Participants were classed as having no knowledge if they were unable to describe stress, talked entirely off topic, or if the researcher was unable to determine the meaning from transcripts. A 'poor' knowledge score was given if participants described one of the aforementioned domains, 'limited' knowledge was assigned if participants described two or three domains and 'extensive' knowledge was allocated to participants who described four or more domains.

Participants were also allocated into one of three groups representing their level of experience of stress: (1) direct experience only, (2) indirect experience only,

(3) both direct and indirect experience. Experience was also measured by the number of people participants had seen stressed.

Coping was measured using a four-point Likert scale and thematic analysis of qualitative responses.

11.3.2 Participants

An a-priori sample size was determined using power analysis (G*Power 3; (Faul et al., 2007). Assuming a medium effect size (0.30), with 0.95 power, based on chi square or one-way ANOVA comparisons of four groups, a minimum sample size of 191 was required (a minimum of 48 participants per age group).

11.3.2.1 Children

Child participants were recruited from the schools outlined in the previous Chapter (see Section 10.3.2); 185 children took part in the interviews. Children with obvious poor English, or who had recently begun to use English, for example, recent Polish immigrants were interviewed in the interest of open participation, but their data were excluded from the study ($n=3$). Further details of the participants are provided in Table 11.1.

Table 11.1. Number and Percentage of Girls and Boys in Each Age Group in Main Studies

Age group	Males		Females		Total
	No.	%	No.	%	
Early childhood (age 4-7) School year: Reception, 1 and 2	38	51.4	36	48.6	74
Middle childhood (age 7-9) School year: 3 and 4	29	49.2	30	50.8	59
Late childhood (age 9-11) School year: 5 and 6	14	28.6	35	71.4	49
Total	81	44.5	101	55.5	182

11.3.2.2 Adults

Adult participants were recruited using a snowball sampling technique via an online social networking site. Network contacts were asked to forward a link to an online survey developed using the computer package 'survey monkey'. Seventy three participants completed the survey over a one-month period; 71 of

these participants (aged 20-62; $M=37.01$, $SD=11.34$) provided demographic factors, a breakdown of which is found in Table 11.2. An opportunity sample of 20 adults (aged 27-70; $M=47.85$, $SD=14.09$), were recruited to ensure that the method was comparable to child face-to-face interviews. Demographic details of these participants can also be found in Table 11.2.

Table 11.2. Demographic Information of Adult Participants in Main Study

Demographic variable	Breakdown	Method of data collection	
		Survey ($n=73$)	Interview ($n=20$)
		No.	No.
Gender	Male	21	4
	Female	50	16
	Undisclosed	2	0
Education	University diploma or above	53	13
	Secondary school or college	15	7
	Professional qualification (e.g., City & Guilds)	3	0
	Undisclosed	2	0
Employment	Professional occupation	26	5
	Administrative	11	1
	Management/senior position	7	4
	Students	7	2
	Retired/unemployed	1	5
	Carers	3	0
	Sales/customer services	3	0
	Technical occupation	2	0
	Other	10	2
	Undisclosed	3	1
Ethnicity	White, White British (including Welsh, Irish, Scottish or Caucasian)	59	19
	Pakistani	3	0
	White European	1	0
	Afro-Caribbean	1	0
	Asian	1	0
	British Asian	1	0
	British Pakistani	1	0
	Indian	1	0
	Jewish	1	0
	Undisclosed	4	1

11.3.3 Ethics

The child sample was the same as in the previous draw-and-tell study, therefore, details of the ethical considerations for child participants can be found in the previous chapter (Section 10.3.3). Ethical considerations for adult participants are provided below.

The adults who completed the online survey were initially asked to check a box confirming that they were over the age of 17-years and lived in the UK.

Background information about the study, along with the contact details of the researcher and supervisor were included in the initial information provided to participants, to enable them to enter into the study with informed consent. Participants were then asked to check three boxes stating that they: (1) had read the background information and understood what the study was about; (2) understood that taking part in the study was voluntary and that they could withdraw at any point without giving a reason; and (3) that they understood that the results of the research may be published, but no one would be able to identify individual answers. Adults were not allowed to proceed with the study without checking all three of these boxes to demonstrate that they provided consent.

Although it was not anticipated that adult participants would be harmed through taking part in the study, it was acknowledged that, for some participants, stress may be a sensitive topic. As research was conducted via the internet and it was not possible to follow up participants, it was necessary to provide information to ensure that participants were able to contact others after the research if they wanted further information or support. Therefore, at the end of the study (or if participants pressed the withdraw button), participants were advised that they could talk to his/her general practitioner (GP) if they required further help or advice to manage stress. They were also signposted to the 'NHS Choices' website for immediate information about stress (including symptoms, causes, diagnosis, and prevention). The contact details and a brief description about the support organisation The Samaritans was also provided.

11.3.4 Materials

11.3.4.1 Children

Semi-structured interview questions were open-ended and nondirective (see Figure 11.1). All interviews covered the same questions, although these were asked in different orders (depending on who the children had drawn), to allow more natural conversation.

11.3.4.2 Adult survey/interviews

The adult survey was based on the questions asked to children in the preliminary studies (Chapters 5 to 9). As in early research exploring students' understanding of stress (Garrard & Brumby, 1985), the question about the meaning of stress was framed within a game of Scrabble™. The aim of framing

the question in this ‘fun’ manner was to relax participants, in the same way as drawings gently introduced children to the topic.

Figure 11.1. Child Semi-Structured Interview Schedule

Children who drew a picture of him/herself	Children who had drawn a picture of other person
That’s a brilliant picture of you being stressed. What sort of things make you feel stressed?	That’s a brilliant picture of [name of person the child described]. Do you know anybody else who has been stressed?
How did if feel when you were stressed?	When you’ve seen these people stressed, how could you tell that they were stressed? <i>Does anything else happen when someone is stressed?</i>
Do you know anybody else who has been stressed?	Have you ever been stressed?
If yes: When you’ve seen these people stressed, how could you tell that they were stressed? <i>Does anything else happen when someone is stressed?</i>	If yes: What sort of things make you feel stressed?
What do you think stress means? <i>Remember there are no right or wrong answers, what do you think that ‘stress’ is?</i>	
Do you think that there is anything people can do to stop stress? Can you put the arrow on the line where you think it best fits? Do you think there is nothing at all people can do to stop stress, a few things people can do to stop stress, a lot of things people can do to stop stress, or lots and lots of things people can do to stop stress?	
What sort of things do you think that people could do to stop stress? <i>Is there anything else you or other people can do to stop stress?</i>	

Figure 11.1. Questions asked in the interviews which followed the draw-and-tell study. Phrases in italics show prompts. Prompts were used if children did not respond and/or when the researcher needed to clarify a point the child had made. They were also used if the child asked the researcher to explain the question, acting as a way of paraphrasing the question. Questions based on interview schedule used by T, Charman & S, Chandiramani, 1995, *Psychology & Health*, 10, p. 147. Copyright 1995 Harwood Academic Publishers.

To test the acceptability of the questions, a paper copy of the survey was produced and two lay adults were asked to comment on both the information given prior to the survey and the actual survey. Following feedback, changes were made to the structure and content. An online version of the survey was produced and five lay adults were asked to complete the survey and feedback any difficulties. Minor amendments were made to the response formats and content, leaving the questions, as shown in Figure 11.2. Demographic information was obtained at the end of the survey.

Figure 11.2. Adult Survey/Interview Questions

1. Firstly, I'd like you to imagine that you are playing a game of Scrabble™ with a friend. You start with the word 'stress' and your friend says 'what does that word mean'? How would you explain what stress means to your friend?
 2. If somebody is stressed, how would you be able to tell?
 - 3a. Do you know anybody who has been stressed?
3b. Who do you know who has been stressed?
 - 4a. Have you ever been stressed?
4b. If yes, what did it feel like when you were stressed?
 5. How much do you think people can do to stop or manage stress?
Response options: nothing, a few, lots, lots and lots
 6. What sort of things do you think that people could do to stop stress?
-

11.3.5 Procedure

11.3.5.1 Children

Following the discussion of children's drawings, reported in Chapter 10, semi-structured interviews were conducted. In the draw-and-tell part of the discussion, children had already provided permission to record the interviews using a digital recorder. Children were asked the questions, in the order displayed in Figure 11.1, after each response children were asked "*Anything/anybody else?*" until children had no more responses. For the question, "*How much can people do to stop stress?*" children were asked to place the movable arrow on the Velcro line (as in the preliminary interview study, Chapter 7). The researcher noted responses for this item on a grid designed for this purpose. Children were then asked, "*What sort of things can people do to stop stress?*" If children showed actions or facial expressions during the interviews, these were described verbally by the researcher to check clarification with the child and ensure that they were audible on the recording. Children were debriefed and asked if they had any questions. All children, in each class, regardless of their level of participation were given a sticker for listening to the researcher.

11.3.5.2 Adults

Adult participants were asked to complete an online survey. After providing informed consent, participants were asked the questions in the order they appear in Figure 11.2. Most questions (1,2,4,7) were open-ended. The question

"Do you know anybody who has been stressed?" provided a 'yes/no' response. If participants answered "yes", they were asked to mark who they had seen stressed from the following: mother, father, sister/brother, other family member, friend, colleague, and other. For the question "*How much do you think people can do to stop or manage stress?*" participants were given the same four response options as children: nothing, a few things, lots of things, and lots and lots of things. A smaller number of adult participants were asked the same questions verbally, which were recorded using a digital audio-recorder.

All interviews (child and adult) were transcribed verbatim using the same notation outlined in the draw-and-tell study (see Table 10.4). After each interview had been transcribed, transcripts were read whilst listening to the recordings to ensure accuracy. Analysis of the results was then carried out.

11.3.6 Analysis

11.3.6.1 Development of coding scheme

Thematic analysis was applied following the six-phase guidelines outlined in Braun & Clarke (2006).

To re-familiarise oneself with the data, following transcription, final transcripts were reread by the researcher, important points were noted in the margins and key phrases were highlighted. In order to ensure that children were 'listened to', the transcripts were read by a second independent person, who did not have familiarity in the subject area. The second rater also highlighted what they felt were key segments of text (what they felt participants were trying to get across in each transcript); these were then compared with the primary researcher's notes. This was to ensure that all the main points were noted and that each point reflected the participant's experiences, rather than bringing in the researcher's perceptions based on previous research.

Each key segment of text was broken down into meaningful clauses (see Figure 11.3). If a participant repeated him/herself, this was only analysed once. Key segments of text could include one or more codes. Children's questions to the researcher were not analysed. The software package NVivo 8 was used to help with the organisation of data and the development of themes. Initial codes were generated by tagging relevant semantic content in each key segment of text in NVivo. This initial coding list was formatted in alphabetical order, the search for themes then began. The initial coding list was studied by two researchers (both

psychologists), who independently grouped related codes together. The researchers met and where discrepancies occurred, agreed, through consensus, on which items should be grouped together into themes and higher-order categories. As in the previous study, the higher-order categories: biological, psychological, social, and other were felt to best-fit the data, although additional sub-themes within categories were also identified.

Figure 11.3. Example Data Extract With Corresponding Codes

Data extract from Alec (male, age 11)	Initial codes
"{1. When you have lots of things on} and um {2. you expect to do high and you don't think you can get as high as others} and um when you're um when {3. you're tired from work} and {4. when you're trying to do your best but your best isn't good enough you think}. And um {5. my dad can say like without saying he is stressed from work because like he doesn't tell anyone} but {6. he tells me sort of} but {7. I think it's because his boss is asking too much of him} and {8. he has to do too much} and {9. he's getting older and his arms are starting to ache} and {10. he starts to get a bit fed up}"	1. Lots of things to do 2. Explanation of stressor 3. Tired 4. Best isn't good enough 5. Don't tell others 6. Heard/told about stress 7. Explanation of stressor 8. Having to do too much 9. Explanation of stressor 10. Fed up

Key: {} illustrate key segments of text

Themes were then reviewed, by reading all the extracts within each theme and considering whether they formed a coherent pattern. This led to the development of the thematic map. The validity of each of the themes was then evaluated by systematically reviewing the entire data-set to establish whether the themes accurately reflected the data. Modifications were made to the thematic map and the themes defined and named. The scope and content of each theme was described briefly and points of interest within each of the themes were noted. A random selection of transcripts (20%) was then coded by another psychologist in training, using the themes displayed in Table 11.3. Participants' knowledge and experience scores were calculated (as outlined in the Design section – 11.3.1). Content analysis of the frequency of occurrence of each of the identified themes was conducted. Data were analysed using inferential statistics, where appropriate, to see if any trends were evident.

Table 11.3: Themes Identified Within Higher-Order Categories and Example Codes From Main Study

Themes & codes	Higher-order categories				
	Biological	Psychological – behavioural	Psychological – cognitive	Psychological – emotional	Social
Themes	<ul style="list-style-type: none">• Physical or mental health or wellbeing• Changes in behaviour which may have a physiological element• Physiological systems or processes	<ul style="list-style-type: none">• Body language and verbal expressions• Aggressive behaviours• Behavioural avoidance• Miscellaneous behavioural factors	<ul style="list-style-type: none">• Thoughts relating to confusion• Cognitive exhaustion/errors/interference• Thoughts of withdrawal/wishful thinking• Disturbing thought	<ul style="list-style-type: none">• Negative feelings involving heightened emotion• Other negative emotions• Other emotions• Facial expressions	<ul style="list-style-type: none">• Social behaviour• Social situations/environment
Example codes	<ul style="list-style-type: none">• <i>Physical or mental health or wellbeing</i>• Back pain• Chest pain/ache/tight/heavy chest• <i>Changes in behaviour</i>• Changes in eating behaviour – more/less; putting on or losing weight• <i>Physiological systems or processes</i>• Dry mouth• Excess energy• Hot	<ul style="list-style-type: none">• <i>Body language and verbal expressions</i>• Looks worried/tired• <i>Aggressive behaviours</i>• Are mean/nasty• Argue• Hit/smack you• <i>Behavioural avoidance</i>• Avoids situation• Quiet/remote• <i>Miscellaneous behavioural factors</i>• Cry/tearful• Pacing	<ul style="list-style-type: none">• <i>Confused thoughts</i>• Hard to prioritise/think what to do first• <i>Cognitive exhaustion/errors</i>• Inability to concentrate• <i>Thoughts of withdrawal/wishful thinking</i>• Think you want to be alone• <i>Disturbing thoughts</i>• Think something bad is going to happen	<ul style="list-style-type: none">• <i>Negative feelings involving heightened emotion</i>• Mardi• Panicky/panic• Unkind• <i>Other negative emotions</i>• Angst• Apprehension• Bad• <i>Other emotions</i>• Feel brave• Happy• Stressed out• <i>Facial expressions</i>• Sad face	<ul style="list-style-type: none">• <i>Social behaviour</i>• Act differently with family• Sits alone• Looks away• Doesn't want to talk/says 'go away'/gives short replies/ ignores someone• <i>Social situations/environment</i>• Can't forget stress even in social situations• Didn't want to go out in public• No time for family
				<ul style="list-style-type: none">• Coping• Other factors	<ul style="list-style-type: none">• Response was not codable
				<ul style="list-style-type: none">• <i>Coping</i>• Felt should have been able to cope• Inability/reduced ability to cope• Things get on top of you• <i>Other factors</i>• Can't always tell/hidden/sometimes hard to identify in self• Individual differences• Normality of stress	<ul style="list-style-type: none">• <i>Uncodable</i>• Provided no response, stated that they did not know the answer or talked off topic• Meaning of the text was undeterminable without making subjective judgements about meaning

11.4 Results

The Results section is presented in relation to each of the research questions. Data extracts are used throughout to illustrate evidence of each theme, as well as provide unusual examples or interesting features in the data. Prior to conducting the analysis, checks were made to ensure that the assumptions of parametric tests were not violated. Kolmogorov-Smirnov tests showed that the frequency data were not normally distributed, therefore, non-parametric tests are used throughout this section; a two-tailed significance level of less than 0.05 was considered significant in all statistical analysis unless otherwise specified.

11.4.1 Inter-rater reliability

Cohen's kappa was used to examine inter-rater reliability in coding 20% of child and adult data into the higher-order categories. Near perfect agreement [$\kappa=.86$ ($p<.001$), 95% CI: .84-.87] was obtained (Viera & Garrett, 2005). Where discrepancies occurred, the researchers agreed a code through mutual consensus. Amendments were made to the coding manual and allocated codes, as appropriate.

11.4.2 Sample differences

Firstly, investigations were made to identify whether there were any differences across adult participants' data collected by surveys and interviews and to explore whether there were any differences across genders or school groups in the child data. Each of these will be considered in turn.

11.4.2.1 Adult surveys and interviews

There was a significant association between the method of data collection and the disclosure of psychological emotional features associated with stress. Significantly more adult participants completing the survey (90.4%) disclosed psychological emotional features than those adults completing face-to-face interviews (70.0%) [$\chi^2(1)=5.44$, $p=.02$, $\phi=.24$]. There were no other significant differences in the frequency of codes or higher-order categories adult participants mentioned in the interviews or surveys. There were also no significant associations across ethnicity or level of education and employment.

11.4.2.2 Gender differences

Preliminary analysis also revealed no significant associations or differences across genders of children. In the adult data, the only significant gender difference was that the mean number of codes was higher in females ($M=10.35$,

SD=6.19; CI: 8.83-11.87) than males (M=7.08, SD=2.47; CI: 6.06-8.10). This difference was significant (U=518.50, $p=.006$).

11.4.2.3 Differences across schools

Again, few differences were identified across schools, representing different socioeconomic areas (see Table 10.2). The only difference was that children, in the upper age group, from higher SES schools [schools 3 and 4] (M=3.19, SD=1.05; CI: 2.63-3.75) had seen a greater number of people stressed than children in the lowest SES school [school 1] (M=2.09, SD=0.89; CI: 1.78-2.40). This difference was significant (U=119.00, $p=.001$).

As very few significant differences or associations were identified across data collection methods and demographic factors, data were combined in all subsequent analysis to explore children's and adults' conceptualisation of stress.

11.4.3 Conceptualisation of stress

As mentioned in the analysis section, the higher-order categories were: biological, psychological, social, and other; the psychological category was further sub-divided into behavioural, cognitive and emotional domains. Within each of the main higher-order categories, several themes were identified, as displayed in Table 11.3. Examples of quotes from each of these themes are provided below, but firstly, descriptive and inferential statistics of the higher-order categories are considered.

11.4.3.1 Statistical analysis

As illustrated in Table 11.4, the biological category was mentioned more by older children and adults than younger children.

The psychological behavioural and emotional categories were frequently mentioned across all age groups. The number of children who mentioned a psychological cognitive or a social feature increased across age groups, with very few of the youngest children having codes in these categories. The miscellaneous category was the least frequently mentioned across all age groups of children, but a large number of adults' had codes in this category; this was shown in the particularly high Cramer's V result.

Table 11.4. Number and Percentage of Participants [and Chi Square Results] With Codes in Each Higher Order Category

	Age group								χ^2	V
	Aged 4-7 (n=74)		Aged 7-9 (n=59)		Aged 9-11 (n=49)		Adult (n=93)			
	No.	%	No.	%	No.	%	No.	%		
Biological	26	35.1	21	35.6	28	57.1	66	71.0	28.63	0.32
Psychological Behavioural	47	63.5	46	78.0	46	93.9	82	88.2	22.79	0.29
Psychological Cognitive	3	4.1	17	28.8	19	38.8	55	59.1	56.82	0.46
Psychological Emotional	58	78.4	57	96.6	49	100	80	86.0	18.50	0.26
Social	5	6.8	12	20.3	15	30.6	22	23.7	12.49	0.21
Others	1	1.4	1	1.7	3	6.1	69	74.2	160.1	0.76

Note. Significance level was $p<.001$, except social category where $p=.006$. All degrees of freedom (df=3)

Overall, both the mean and median number of features participants in each age group mentioned increased with age (see Table 11.5). There were increases in the mean frequencies of codes in all higher-order categories with rising age throughout childhood. Adult mean frequencies were higher in the psychological behavioural, cognitive, and overall codes, but fell between the oldest two age groups of children for the remaining higher-order categories. The results of one-way Kruskal Wallis tests were significant across all higher-order categories.

Each of the higher-order categories will be presented in turn. There will be a focus on the biological and psychological behavioural categories as these are where qualitative differences were most evident. Throughout this section, the following notations are used in quotations: [square brackets] to illustrate a point or to clarify what the participant is talking about and an ellipsis ... to show parts of the quotation are omitted. As within the rest of the thesis, all names have been changed to ensure anonymity of participants.

Table 11.5: Measures of Central Tendency and Dispersion for Each Higher-Order Category

	Age group			
	Aged 4-7 (n=74)	Aged 7-9 (n=59)	Aged 9-11 (n=49)	Adult (n=93)
Biological				
<i>M</i>	0.46	0.44	1.04	2.04
<i>SD</i>	0.73	0.70	1.14	2.59
<i>CI</i>	0.29-0.63	0.26-0.62	0.71-1.37	1.51-2.58
<i>Mdn</i>	0.00	0.00	1.00	1.00
Range	0-3	0-3	0-5	0-17
Significant one-way Kruskal Wallis test (H=46.25, df=3, p<.001)				
Psychological Behavioural				
<i>M</i>	1.20	1.54	2.22	2.38
<i>SD</i>	1.51	1.25	1.42	1.80
<i>CI</i>	0.85-1.55	1.22-1.87	1.82-2.63	2.01-2.75
<i>Mdn</i>	1.00	1.00	2.00	2.00
Range	0-9	0-5	0-8	0-9
Significant one-way Kruskal Wallis test (H=35.29, df=3, p<.001)				
Psychological Cognitive				
<i>M</i>	0.04	0.32	0.63	0.99
<i>SD</i>	0.20	0.54	1.06	1.26
<i>CI</i>	0.00-0.09	0.18-0.46	0.33-0.94	0.73-1.25
<i>Mdn</i>	0.00	0.00	0.00	1.00
Range	0-1	0-1	0-5	0-8
Significant one-way Kruskal Wallis test (H=58.80, df=3, p<.001)				
Psychological Emotional				
<i>M</i>	1.97	2.10	3.04	2.29
<i>SD</i>	1.61	1.23	1.27	1.57
<i>CI</i>	1.60-2.35	1.78-2.42	2.67-3.41	1.97-2.61
<i>Mdn</i>	2.00	2.00	3.00	2.00
Range	0-6	0-5	1-6	0-6
Significant one-way Kruskal Wallis test (H=17.78, df=3, p<.001)				
Psychological (all)				
<i>M</i>	3.22	3.92	5.90	5.66
<i>SD</i>	2.62	2.01	2.29	3.17
<i>CI</i>	2.61-3.82	3.39-4.44	5.24-6.56	5.00-6.31
<i>Mdn</i>	3.00	4.00	6.00	5.00
Range	0-12	0-9	2-11	1-21
Significant one-way Kruskal Wallis test (H=51.48, df=3, p<.001)				
Social				
<i>M</i>	0.09	0.22	0.39	0.29
<i>SD</i>	0.41	0.49	0.64	0.56
<i>CI</i>	0.00-0.19	0.09-0.35	0.20-0.57	0.17-0.41
<i>Mdn</i>	0.00	0.00	0.00	0.00
Range	0-3	0-2	0-2	0-2
Significant one-way Kruskal Wallis test (H=12.64, df=3, p=.005)				
All codes				
<i>M</i>	3.81	4.63	7.43	9.41
<i>SD</i>	3.06	2.24	2.78	5.56
<i>CI</i>	3.10-4.52	4.04-5.21	6.63-8.23	8.26-10.55
<i>Mdn</i>	3.00	4.00	7.00	8.00
Range	1-16	1-10	3-15	3-42

11.4.3.2 *Biological*

The biological category included three themes which referred to physical or mental health and wellbeing (e.g., aches and pains, depression), changes in behaviour which may have a physiological element (e.g., eating and sleeping) and changes relating to physiological systems or processes (e.g., breathing changes, increased perspiration).

Biological theme 1: Physical and mental well-being

From a qualitative perspective, biological themes were much more frequent within adult data than child data. Additionally, adults mentioned a much wider range of both physical and mental health and wellbeing codes, than children. Adults often talked about the physical and mental consequences of stress in broad terms. For example, when asked to define stress, Alicia commented, *"I'd say stress is a generic term for lot of signs and symptoms that show your body and mind aren't coping very well with a situation or series of situations"* (Alicia, female, age 28). Some adult participants defined physiological symptoms as well as specific ailments, for example, *"[Stress is] an uncontrollable sense of pressure upon you, causing certain symptoms such as restlessness, increased heart rate, tight chest, sweating, dry mouth, headaches"* (Ronan, male, 54).

In terms of personal experience of stress, as well as reporting illness in general terms, adult participants mentioned the following: aches and pains, acidity, back pain, chest pain, exacerbation of chronic conditions, glands ache, tight jaw, headache, IBS (irritable bowel syndrome), mouth ulcers, nausea, nerves, panic attacks, rash, stomach ache, and muscular pain. In contrast, few children reported feeling ill because of stress; the exceptions were headaches and stomach ache. One of the oldest children reported getting a stomach ache, *"I felt frustrated and I had like a stomach ache and I thoughts [thought] something bad was going to happen"* (Ginny, female, age 10). One of the youngest children also reported feeling sick, although it was not clear whether this was a stressor or stress response, *"[How did you feel when stressed?] Very down. I feeled [felt] sick. Then I felt better"* (Kieran, male, age 5). Ten children mentioned headaches anywhere in their interviews. Three children, one in each age group, reported that they got a headache when stressed. Five children included headaches within their definitions of stress. A further five children included a headache in their explanations of how they may be able to tell someone was stressed, as Ryan explained, *"Because they go [sigh sound]. They might just - might have a headache, they might shout"* (Ryan, male, age 6).

Adults also included psychological factors and/or the mind-body distinction more often than children. Only one child mentioned depression in her definition, *"[Stress is] like when you're depressed and fed up"* (Patience, female, age 10). One adult also mentioned depression, *"[Stress is] getting angry at the slightest little thing, headaches, feeling depressed, no time for yourself, shouting at the children, giving up on life"* (Brenda, female, age 40). A further two adults mentioned low mood and one discussed changes in wellbeing. Five adult participants also reflected on both physical and psychological symptomology, for example, *"It's when you feel some of the issues in your life appear to be beyond your control and so you feel tense at your inability to deal with them. This feeling can bring on physical and mental symptoms that may require medical intervention"* (Dana, female, age 46).

Biological theme 2: Changes in behaviour which may have a physiological element

Changes in behaviour (eating and sleeping), which may have a physiological element, were also more prevalent in adult than child participants. Five adults reported that changes in eating behaviour may be one way you could tell a person was stressed, for example, by their *"Lack of appetite or binge eating"* (Edwina, female, age 28). Only one child mentioned eating related behaviour within her definition, and this was seen as a stressor, *"Err I think it means you're tired, you're hungry - and you're very exhausted"* (India, female, age 6). When describing their personal experience of stress, no children reported changes in eating patterns, but six adults expressed dietary changes. Two participants lost their appetite, one described eating too much, whilst another, Francesca (age 48), described how her diet became *"Poor"* and she *"Put on weight"*. A further two participants described how they did not eat as well as they should, for example, *"[I felt] awful, I felt like I couldn't cope with things, trivial things like having no milk for tea would cause major upset. I couldn't sleep, didn't eat as well as I should, wanted to avoid the stressful situation"* (Alicia, female, age 28).

Exhaustion and/or tiredness were frequently mentioned by both children and adults, although children's and adults' descriptions again differed. Some adult participants reflected that, as in eating behaviour, stress may affect people in different ways, *"They may suffer sleeplessness or sleep a lot"* (Georgina, female, age 49). Indeed, most adults' comments about tiredness were usually within their definitions and reflected sleep disturbances as a consequence of stress, for example *"Stress is when you feel worried about something, it can make you lose*

sleep or be uncharacteristically snappy" (Hetty, female, age 50). In contrast, children's comments reflecting sleep/tiredness were usually in terms of a behaviour or feeling, *"It means when you like, like I don't know how to explain everything, sort of like when a bit, when you are doing a lot and you just sort of feel tired and annoyed"* (Dora, female, age 8). Or, even as a stressor, *"When you are so tired and you can't do anything that you want to do because you are just so tired and you can't move"* (Clive, male, age 10). Only one child commented about possible sleep disturbance, *"When you are tired and when you don't go to sleep, but you are tired"* (Vaughen, male, age 7). Although 24 children noted tiredness within their explanations of stress or how one can tell a person is stressed, it is possible that some of these children repeated what they had heard adults say, as some phrases seemed more characteristic of adult's terminology. For example, *"[Stress] means that I – I – I've had a long day and – and now am tired and – and – and sleepy. I think it means that – it means that I – stressed and I've been on my feet for a long time"* (Una, female, age 6).

Biological theme 3: Changes relating to physiological systems or processes

Changes relating to physiological systems or processes were also evident in more adults' than children's data. One adult participant provided a long list of ways in which he could tell someone was stressed, which included numerous physiological elements:

"Shortness of temper, seems aloof or distracted, memory loss, possible signs of anxiety, unexpected panic, physical tension, sighing, shortness of breath, weeping, adrenalin signs - flushed, hypervigilance, aggression, excessive movement, shaky, inappropriate/excessive speech or conversely socially withdrawn, low mood, reduced energy, excessive negativity, thoughts of inferiority/uselessness, constant fatigue or sleepiness, nausea, changes in eating/drinking habits, weight gain/weightloss, dependency on certain substances" (Ian, male, age 28).

Although less frequently seen in children's accounts, some children did report visible features which had a biological element. For example, one 10-year old commented she could tell when her father was stressed because, *"Two veins come up and his eyebrows come up and these two veins show up on his forehead"* (Ashley, female, age 10). Children also reported that having a red face or eyes was a sign of being stressed, *"And my face it got it was like filled*

with red" (Fernley, male, age 9). Although children's explanations of why red faces/eyes happened were not always accurate, *"Cause his face was very very red and he couldn't see because he was angry and tired and his eyes just like turned red because the blood like went right up to his head"* (Clive, male, age 10).

Ten children reported being hot within their stress definitions, including two 7-year old children within the early childhood condition, for example, *"I think it [stress] means when you get all hot and you are really annoyed and stuff"* (Wilhelmina, female, age 7). One child in middle childhood described hotness in terms of burning up, *"I feel like I'm burning up and I just don't know what to do. I feel like I want to cry but I don't want to because she might go and tell everybody"* (Sally, female, age 9). Older children's definitions tended to be more multifaceted, for example, *"It's like when something happens in your life and you don't know why and you think like why did I do it or something like that. You're hot and you think what should I do, where should I go and that's like stress"* (Ofofon, female, age 11).

These biological features were also evident in children's accounts of their feelings when stressed. Four children in middle childhood and five in late childhood reported that they felt hot; three stated that they got a red face; two felt sweaty and one girl described how her heart pounded and she felt shaky:

"I was really worried that my heart was like pounding and I just didn't know what to do so, I was thinking of ways in which you know to stop stress, so I drank some water. It did work a little bit, but I got really hot. Really like worried, my head was going everywhere. I couldn't think about things. Like the boy [illustrated in her picture] I was probably shaking and you know holding my hands in my mouth and my eyebrows were like [lowers eyebrows and furrows brow]" (Tanya, female, age 11).

Adults frequently reported a multitude of physiological responses that they had felt in response to stress. Although some of these were similar to those mentioned by children (e.g. sweating $n=1$ and heart rate increasing $n=3$), there were also differences, for example, no adults mentioned feeling hot, shaking or getting a red face. In addition, adults also reported - muscular tension ($n=6$), chest pain/palpitations ($n=4$), breathing difficulties ($n=3$), blood pressure

increases ($n=2$), adrenalin ($n=2$), hair loss ($n=2$), needing to urinate ($n=1$), and excess energy ($n=1$), - as personal experiences felt in response to stress.

11.4.3.3 Psychological behavioural

The psychological behavioural higher-order category included any codes with a behavioural element, this included body language (e.g., looking worried), verbal language (e.g., saying 'grrr', 'rar, rar rar' or 'argh'), aggressive behaviour (e.g., swearing, being mean), behavioural avoidance (e.g., walking or looking away) and other behavioural factors (e.g., the inability to switch off or relax).

Psychological behavioural theme 1: Body and verbal language

When asked to describe how you could tell a person was stressed, 21 adults and 24 children specifically mentioned body language or the way the person looks. For example, *"Detecting it can depend how well you know the person but it can manifest in body language, voice, personal behaviour (impatience etc.) and even in how 'stressed' they look"* (Jack, male, age 31). Only children in the oldest age group mentioned body language per se, younger children tended to refer to body language as looks, for example, *"Well I thought it's because of how they look. They looked really stressed"* (Dora, female, age 8). Comments about the way an individual looked, mentioned by adults and children, included clenching or grinding teeth, fidgeting, folding arms, holding their head, nervous tics, and/or repetitive behaviour, rubbing their forehead, shrugging shoulders, and looking uptight. Older children's comments tended to be longer and some were similar in context to adults' comments. For example:

"Not just how your face is, but how their body is reacting to how the stress is, so you know - and how your body is like standing, so if your body is turned away and you're in a corner, then they might be stressed and they could be angry. Trying to not be noticed as much as others" (Alec, male, age 11).

Twelve adults and 28 children mentioned you could tell a person was stressed by their tone of voice or what they say, as illustrated by the following adult's comment, *"An elderly lady I knew would mutter 'oh dear' repeatedly, as a mantra. Sometimes a person who is usually chatty can become quiet and withdrawn"* (Kevin, male, age 41). Younger children's comments tended to be descriptive, for example *"Cause she made a funny noise [demonstrates noise: grrrr]. Her face, she went all grumpy [demonstrates facial expression, mouth*

and eyes down]" (Charlene, female, age 7). Children described people growling, saying 'argh', and being 'rar, rar, rar'.

Children were more likely to report that you could tell when someone was stressed because they say they are stressed. Only two adults commented on this, compared to 28 children. Sometimes, this was the only way children could tell a person was stressed, as illustrated in the interview with Amelie (female, age 7):

Interviewer: *"Who do you know who has been stressed?"*

Child: *"My mum. Because sometimes my mum says that she is stressed".*

Interviewer: *"How could you tell that she was stressed?"*

Child: *"Because she says it".*

Interviewer: *"Anything else?"*

Child: *"No".*

Psychological behavioural theme 2: Aggressive behaviour

Ten children, across all age groups, reported feeling violent when stressed, for example, *"Sometimes, when I go home, I start knocking stuff down and throwing it on the floor. Once I actually, like I was really mad when I came through and I knocked the fence down that surrounds my house"* (Octavia, female, age 11). A further three children reported that they felt like saying bad things to themselves or others, as illustrated by Victoria, *"I like throw stuff at the window, not the window, just the mirror. And I look at my face and I say mum, I look ugly"* (Victoria, female, age 7). Although some children reported being able to control their anger, many children reported this was difficult. For example:

"I feel like - it feels like I'm not human all the time and it feels like I've got smoke coming out of my ears all the time. I always have to like clench my fists to try and get rid of the stress because it feels like otherwise I'm going to just explode. So - I have to like literally take it out in my room, because, like I don't have a brother or sister to help me get rid of the stress, and I can't really like yell all the time at my mum or dad. So I just have to take it out in my room, like on one of my pillows or something. Like I try to control it but it's really hard" (Bridget, female, age 11).

Two children described hurting themselves by hair pulling, Raquel commented, *"Like if my hair is in a pony tail then I grab hold of it and squeeze it really hard. I just grab hold of bits I can grab at the side"* (Raquel, female, age 10).

One girl described a violent knife crime when talking about other people who were stressed, *"Because my cousin was walking on his own and this man came at him with a knife and he's dead"* (Ulrica, female, age 8).

Adults also described aggressive behaviours, although these were usually thoughts rather than actions. One adult described how she vented her emotions, *"The number of people I've decided that I want to kill while I've been gardening! And I actually found that, - I don't mean that literally - I vent a lot or I have, in the past, vented a lot of my anger in the garden"* (Lorna, female, age 58).

One adult participant described *"Shouting at the children"* (Brenda, female, 51) when stressed. Children were well aware of parents shouting when stressed. Children's comments about shouting included being shouted at, *"Like when I ask him [my dad] for something then he shouts at me like for no reason and that's how I know"* (Scott, male, age 11) and others shouting. For example, *"My mum like shouts and like shouts 'we are going to be late, we are going to be late' and she like runs up, like stamps up the stairs when she is going to sort out my room"* (Connor, male, age 9). Children also described shouting at other people when they experienced stress, as Casper illustrated:

"Stress means like say say say someone say someone said you are allowed to go to your aunties and then they broke a promise and said you're not allowed to go to your aunties. You'd just be like [sighs] and get really upset and angry and start shouting at your mum or your dad or your cousin or your brother or your sister or something and saying 'it is your fault that you made that promise and then broke a promise'" (Casper, male, age 6).

Nine children described parental arguments; one child described how this was violent:

"Umm like they were stressed because my dad like er my dad was shouting at my mum. My dad and my mum were stressed. My mum, my

mum was shout[ing] at my dad and then he will he will shout at my mum and she will get so cross and my mum will cry and then my dad will make my mum cry and then my dad hits something and I be good. And then he will hit me and then I will cry and then if my dad hits something then and if your dad will hit you then you will get stressed" (Patricia, female, age 5).

Three children talked about being hit by a parent, although one clarified that this was being smacked for naughty behaviour, *"They get angry, they might do something to you like hit you, like smack you, like when I am naughty they smack me"* (Lucas, male, age 5).

Children also described behavioural consequences for parents, for example, one child said, *"My dad...he started having an argument with my mum - and then they didn't sleep together at night and - that - they didn't get to - they didn't get to do much together"* (Lizzie, female, age 6). Two children also described their parents swearing:

"Daddy has definitely been stressed. I can tell because sometimes he swears and says bad words - sometimes he is like 'who ate the chocolate' because he is greedy. He loves chocolate. He sees a bar of chocolate in the fridge and without asking he'll eat it. Even if it wasn't his" (Amanda, female, age 8).

Psychological behavioural theme 3: Behavioural avoidance

Behavioural avoidance included avoidance of the stressful situation and/or pressure, and not being bothered to do something. The latter was described by both adults, for example, *"At other times I have just given up completely and not bothered to try to do the things I knew I was supposed to be doing"* (Maisy, female, age 58) and children *"I feel tired and I can't be bothered doing anything"* (Nicholas, male, age 8).

Adults also described stressed people's behaviour as distracted ($n=6$), distant ($n=3$) or aloof ($n=1$) and remote ($n=1$). Both children ($n=3$) and adults ($n=6$) described a stressed person as being quiet, for example, *"My uncles eyes were red and he was really quiet and he said he had an [a] headache and was really tired"* (Naomi, female, age 8).

Psychological behavioural theme 4: Other behavioural factors

The theme other behavioural factors was a broad category of behaviours, which did not fit into the above themes. The most frequently occurring was crying, reported by 17 children, across the age groups, for example, *"My mum gets stressed, sad stressed, because my gran was ill and she went to the hospital and my sister, when my sister was ill, my mum was crying and like panicking like that and she was stressed"* (Ofofon, female, age 11). Sixteen adults reported crying, feeling tearful or weepy, two of whom reported crying for no reason.

Many adult participants ($n=18$) commented about stressed people behaving out of character, as Leonard illustrated, *"Difficult to tell unless you know someone really well and then their behaviour may [be] uncharacteristic [uncharacteristic] for them"* (male, age 20). Both adults ($n=7$) and children ($n=4$) described stressed people as being busy, in a rush, moving quickly, or having lots to do. As one adult participant commented, stressed people are, *"Running around like a headless chicken"* (Brenda, female, age 40). Four adult participants also commented upon stressed people having trouble winding down and/or not having time for oneself, and described the inability to forget the stressor, *"[Stress is] a feeling of being under pressure, of having lots on your mind of conflicting things that need sorting out, an inability to switch off and relax"* (Edwina, female, 28).

Sometimes parental stress was hidden from children, although children were aware of the person being stressed *"Cause my mum doesn't let me in, but I know she's been stressed in her bedroom sometimes, but I don't know if she doesn't know I know"* (Martha, female, age 5). Older children also described trying to hide stress or keep it inside, *"Like at school, I try and hide it because I don't want everybody to know that, oh yeah, I'm a stress-head"* (Nina, female, age 10).

11.4.3.4 Psychological cognitive

The psychological cognitive category included any features relating to cognitive processes. This mainly involved thoughts relating to confusion (e.g., didn't know what to do), cognitive exhaustion, errors, or interference (e.g., inability to think clearly or straight), thoughts of withdrawal (e.g., think you want to be alone), wishful thinking (e.g., hoping the stressor goes away) and disturbing thoughts (e.g., belief that all comments are malicious). Examples from each of these

themes often overlapped, they are, therefore, grouped together in the discussion below.

Some young children were able to talk about thoughts or thinking, although this was at times indirect, for example, *"Stress means that you get a bit annoyed with someone and like in your head [you're] saying 'please stop that' in your head. And it feels sad about it too"* (Ulrica, female, age 7). Three children and seven adults thought that they did not know what to do when stressed, as Paige described:

"I feel like I don't want to be near anybody, like I just want to be away from everybody. I feel like my blood starts boiling inside of me, like I'm on fire. You don't know what to do with it and you don't know how to control it. As soon as I feel really stressed I just think I don't know what to do. It kind of takes control of me and then makes me feel as if I'm on like - as if I'm nothing to the world, even though I can't, it just makes me feel like I don't want to exist. I don't want to be really weird and not be able to do anything. I want to be able to cope with it" (Paige, female, age 11).

Some participants reported a cognitive overload from the amount or the tasks that they had to do, which affected their ability to do anything. Rosemary commented:

"[Stress] means like when you've got too much like stuff on your mind and you have to forget everything about yourself and then like you've got so much to do and like you can't sort anything out so you, you're like stressed and can't do anything" (Rosemary, female, age 11).

Both adults ($n=10$) and children in middle and late childhood ($n=6$) reflected upon the inability to stop thinking about the stressor or stressful situation. In addition, adults described many cognitive difficulties relating to stress, in particular the inability to concentrate or maintain focus ($n=16$). Fifteen adults described how it was hard to see the bigger picture or to see a way out of the situation, as Quentin commented, *"[I felt I had] tunnel vision, I couldn't see outside what I had to do"* (Quentin, male, age 35).

Numerous adults ($n=13$) also discussed how they were unable to think clearly or straight, as a consequence of stress, as one participant described he had a *"Disturbed clarity of thought"* (Jack, male, age 31). This lack of clarity of thought seemed to also effect functioning. Five adult participants mentioned how the stress had an effect on performance, were forgetful, or made mistakes, as illustrated by the following, *"Sometime I fould [found] it difficult to solve problems that would normally be straight forward for me or really think things through. I would also loose [lose] concentration easily and made more mistales [mistakes] than usual"* (Francesca, female, age 43). A further seven participants discussed how it was difficult to prioritise tasks or think what to do first when stressed. For example, *"[I felt] unable to cope, overwhelmed, did not know what to do first, could not make decisions in the same way I normally do, insignificant things seemed overwhelming"* (Petra, female, age 40).

Numerous adult participants ($n=24$) mentioned disturbing feelings or thoughts, such as thinking that the stress is *"Getting on top of you and that everything is becoming just too much"* (Teresa, female, age 47). Five adults used analogies where they described thoughts such as, *"Everyday things seem like mountains to climb... life [is] an uphill struggle"* (Caitlin, female, age 58). Three adults reported that they felt trapped. This trapped feeling corresponded with one child's descriptive comment of how she felt when she was stressed, *"It is like being in a straight jacket and you are stuck in it...I felt like I was grey and everyone else was bright colours and whenever anyone asked me I would say something that was rude"* (Ashley, female, age 11). Three adults mentioned wishful thinking, thoughts of wishing the stressor away or as Sarah described, *"Wanting to escape to another place especially the countryside"* (Sarah, female, age 56). Thoughts whereby participants *"Kept thinking about what might happen"* (Faith, female, age 11) were evident both in older children's ($n=2$) and adults' ($n=2$) accounts. Both children who mentioned this talked about waiting to get their SATs exam scores. Four children (one in middle childhood and three in late childhood) and ten adults reported that they couldn't stop thinking about the stressor.

11.4.3.5 Psychological emotional

The psychological emotional category included anything with an emotional element. These included negative feelings involving heightened emotions (e.g., distressed, explode/erupt/rage/explosion of emotions), additional negative feelings (e.g., grouchy/grumpy, left out/lonely), other feelings (e.g., brave,

happy, stressed/stressed out), and facial expressions showing emotions (e.g., sad, straight mouth). Again, these themes will be discussed together.

The most common emotions that children mentioned related to feeling angry, cross, mad and annoyed, as Tiffany stated, "*[Stress is] when you are annoyed and when your head gets angry*" (Tiffany, female, age 10). Feelings of anger and annoyance were frequently reported across all age groups of children within their definitions and what happens to people when they get stressed ($n=108$). Seventy children reported personally feeling angry or annoyed when stressed. The emotion of anger was often related to the behavioural category of aggression, for example, "*[I feel] like really angry, feel like hitting everyone. Like I feeling [feel] like killing people*" (Oscar, male, age 7). Indeed, it was often difficult to separate children's emotions and behaviours, which were often intertwined. Children also reported how emotions became behaviours, as June described, "*I get in trouble for no reason and...I like laugh. I feel like guilty, but I don't feel guilty because I'm the one in trouble and sometimes I end up laughing, yeah like the stress turns into a laugh*" (June, female, age 10).

Some children recognized that the emotions associated with stress weren't always the same. As Amanda said, "*[When I'm stressed I'm] sometimes angry, sometimes sad*" (Amanda, female, age 8). Another 53 children also reported the emotion of sadness and 25 mentioned feeling worried somewhere in their interviews. Again, these emotions were seen across all age groups of children. In contrast, anger and sadness were infrequently mentioned by adult participants ($n=11$ and 2 respectively), although feeling worried was more common ($n=19$). Adults tended to describe feelings associated with stress as: anxious ($n=17$), irritable ($n=17$), overwhelmed ($n=16$), agitated ($n=11$), and emotional ($n=11$). Four adults and two children expressed an explosion of emotions, for example, "*I felt like exploding with rage*" (Gladys, female, age 70).

Both children ($n=40$) and adults ($n=7$) described an array of facial expressions which they suggested may indicate a person was stressed, including: looking sad, angry, cross, having a scrunched up or mardí face, having their mouth and eyes down, a furrowed brow, pursed lips, and having a nasty or weird facial expression. Five children reported one might be able to tell a person is stressed because of them being happy; all these children were in the youngest age group. One child, who reported he felt stressed being in his room, said he felt "*Just just a bit happy but a lot sad. I did feel very lonely*" (Kade, male, age 5).

11.4.3.6 Social

The social category included social and environmental codes. These included codes relating to social behaviour (e.g., does not want to play/talk with you) and social or environmental situations (e.g., not wanting to go out in public).

Although three adults reported that they wanted to be with others when stressed, most participants, who had social codes, wanted to be on their own. For example, "[Stress is] when you don't feel like yourself and you just want to be alone" (Rowena, female, age 11). Both children ($n=22$) and adults ($n=4$) reported that they wanted to be alone or could tell a person was stressed because they walked away or sat alone. A further 11 children and 4 adults reported that they did not want to talk to anyone or that a stressed person ignores others. In addition, one child and nine adults indicated that stressed people withdraw from social activities and/or do not want to go out in public.

11.4.3.7 Miscellaneous

The miscellaneous category included codes which did not fit into the other higher-order categories, these mainly concerned coping (e.g., coping with daily life or making simple things hard) and other factors (e.g., individual differences, positive and negative features of stress, and being out of control).

Only two children mentioned feelings of being out of control when stressed, in comparison to 18 adults. Similarly, only one child mentioned coping within their interview (excluding responses to the question asking directly about coping), but in adults coping was a much more common feature ($n=41$). Two adult participants compared themselves to others, reporting a "*Feeling of inadequacy for 'not coping' when it seems everyone else can!*" (Josephine, female, age 36). Coping was also seen within adults' definitions of stress, which were, at times, psychologically based. For example, "*Stress can be described as a situation where demands on a person exceed that person's resources or ability to cope. However everyone responds differently to pressure or demands placed upon them*" (Mavis, female, age 51). The latter part of this quote also reflects another miscellaneous code – individual differences. Eight adults commented that people react differently to stress, and as Kitty stated, "*Some people thrive on stress*" (Kitty, female, age 30). This reflects the comments from six adult participants who reported that stress may have both positive and negative consequences, as also illustrated in the following quote:

"I think there is good stress, for example working to get something done in time; which brings up your adrenalyn [adrenalin] and urgency and bad stress when faced with things beyond my control or when there's been lack of support or people to talk to about problems which can bring about feelings of sadness, anger" (Kalim, male, age 28)

11.4.4 Experience of stress

Some children across all age groups had both indirect and direct experience of stress, as seen in Table 11.6. Children in the youngest age group were more likely to have only direct or only indirect experience of stress than the other age groups. There was a significant association between age group and whether or not an individual had direct experience of stress [$\chi^2(3)=26.76$, $p<.001$]. This was relatively weak association (Cramer's $V=.31$), although it was highly significant ($p<.001$).

The number of participants with both direct and indirect experience of stress increased with age, with almost all adult participants having both indirect and direct experience. Participants most frequently reported seeing their mothers stressed, closely followed by friends. There were no clear patterns in who participants reported they had seen stressed, although adults more frequently stated that they had seen each person stressed compared to children in all age groups. The mean number of people participants had seen stressed increased slightly with increasing age groups of children, but was significantly higher in the adult participants. The results of a one-way Kruskal Wallis test were significant [$H=68.94$, $df=3$, $p<.001$].

11.4.4.1 Direct experience

Children were asked what things make them stressed, in order to ascertain potential stressors. Of the 142 children who had personal experience of stress, 132 were able to name one or more stressors. The number of stressors mentioned ranged from 1-5, although most children (87.3%) gave one or two responses rather than an exhaustive list of stressors, therefore, these may be considered the most salient stressors. As illustrated in Table 11.7, the main stressors children mentioned were (a) falling out and/or fighting with siblings, or siblings being annoying or mardī (b) falling out with friends and (c) bullying.

Table 11.6. Experience and Knowledge of Stress

Experience	Age group												Total
	Aged 4-7 (n=74)		Aged 7-9 (n=59)		Aged 9-11 (n=49)		Adult (n=93)						
	No.	%	No.	%	No.	%	No.	%	No.	%	No.	%	
Both direct and indirect experience	40	54.1	43	72.9	37	75.5	89	95.7	209		209	76.0	
Direct experience only	11	14.9	7	11.9	5	10.2	1	1.1	24		24	8.7	
Indirect experience only	23	31.1	9	15.3	7	14.3	3	3.2	42		42	15.3	
People seen stressed													
Mother	47	63.5	18	30.5	20	40.8	48	51.6	133		133	48.4	
Father	19	25.7	11	18.6	17	34.7	37	39.8	84		84	30.5	
Sibling	15	20.3	12	20.3	8	16.3	43	46.2	78		78	28.4	
Other family member	8	10.8	13	22.0	9	18.4	37	39.8	67		67	24.4	
Friends	20	27.0	24	40.7	16	32.7	69	74.2	129		129	46.9	
Teacher/colleague	1	1.4	1	1.7	3	6.1	70	75.3	75		75	27.3	
Other	4	5.4	5	8.5	5	10.2	10	10.8	24		24	8.7	
Knowledge													
No knowledge (no categories)	5	6.8	0	0	0	0	0	0	5		5	1.8	
Poor knowledge (1 category)	20	27.0	6	10.2	1	2.0	2	2.2	29		29	10.5	
Limited knowledge (2-3 categories)	45	60.8	46	78.0	32	65.3	52	55.9	175		175	63.6	
Extensive knowledge (4-5 categories)	4	5.4	7	11.9	16	32.7	39	41.9	66		66	24.0	
	M	SD	M	SD	M	SD	M	SD					
No of people seen stressed (including self)	2.22	1.23	2.27	0.98	2.45	1.06	4.34	1.98					

Table 11.7: Childhood Stressors

	Age (years)						Total	
	4-7 (n=50)		7-9 (n=40)		9-11 (n=42)		N=142	
	No.	%	No.	%	No.	%	No.	%
Falling out with friend(s)	5	10.0	13	26.0	5	11.9	23	16.2
Siblings	12	24.0	13	26.0	9	21.4	34	23.9
Difficulties within family	4	8.0	6	12.0	3	7.1	13	9.2
Bullying	1	2.0	14	28.0	2	4.8	17	12
School or school work	2	4.0	2	4.0	6	14.3	10	7.0
Other stressor(s)	29	58.0	12	24.0	23	54.8	64	45.1

Children in middle childhood were more likely to report bullying as a stressor than the other age groups of children. There was a significant association between age group and whether or not a child reported bullying as a stressor [$\chi^2(2)=18.98, p<.001$]. This was relatively weak association (Cramer’s $V=.37$), although it was highly significant ($p<.001$). Bullying was common in children’s accounts, particularly within one class of children in middle childhood. One child stated, *“Sometimes my friends bully other people because they are stressed”* (Barney, male, age 11), illustrating that bullying can be a consequence of stress as well as a stressor. Most children, however, talked about the latter. Children discussed personally being bullied throughout their accounts of stress, as illustrated in the following interview with Felicity (female, age 8):

Interviewer: *“What does stress mean?”*
Child: *“If you’re like unsure like what are the other people doing and if they would like come near you and you don’t know why they hit you”.*
Interviewer: *“What makes you stressed?”*
Child: *“I was like stressed because someone has been hitting me”.*
Interviewer: *“How did you feel when you were stressed?”*
Child: *“Like I was brave because he hit me so hard that I was like having like lots of lots of like bleeding on my head and my arms and my hands”.*

Verbal bullying was also reported, which, for some children had long term consequences. Janet described being bullied for two years, telling teachers, but nothing having been done, she, therefore, did not tell again. She discussed how

she tried to cope with the bullying, *"I ignore them but then they talk about me and I just can't get it out of my head and they say things to me, 'like you're a lesbian' and I don't like it, they call me words and I don't even know what they are"* (Janet, female, age 9).

Three children also reported difficulties regarding feeling different about their clothes or appearance, which sometimes resulted in bullying. For example:

"If you get bullied about what you like and clothes, your clothes... are different from everyone else's 'cause...most boys don't think that pink and yellow are really boys colours and... that's sort of upsetting for me...And you don't really want people to see you, so you are just stressed about that and you just want to be in a corner by yourself or friends that won't play with you because they don't like the same colours or something" (Alec, male, age 11).

Children reported 38 other stressors. The most frequently occurring were: not being able to do what he/she wanted or having to do something that he/she did not want to do, such as chores ($n=9$); difficulties in sleeping ($n=6$); and playing games, including falling off one's bike and not scoring goals in football, as well as stress when playing computer games ($n=6$).

Ten children reported schoolwork as a stressor, including homework, SATs tests and stressing about not being good enough at school work. As Alec commented:

"[Stress is] when you have lots of things on and um you expect to do high and you don't think you can get as high as others and um when you're um when you're tired from work and when you're trying to do your best but your best isn't good enough you think" (Alec, male, age 11).

Not all children reported schoolwork as difficult. In fact, doing homework was reported by two children in their list of ways to stop stress: *"Play football, basketball. Play in your bedroom. Do homework, I like doing homework. Go do work for my mum and doing the flowers, wash [water] them"* (Oliver, male, age 6).

Adults were not asked specifically what made them stressed; therefore, it was not possible to make comparisons across adults and children. Although one child did describe how children make adults stressed:

"All parents are stressed a lot of the time because children don't listen to them. Most children like they like make a mess and do naughty things. Like one day, my err a few years ago, my brother he made [unknown words] he put that plug thing in the sink and then he turned the taps on and the sink was full of um water and it was all falling down in the kitchen" (Oscar, male, age 7).

11.4.5 Knowledge and experience

As illustrated in the knowledge section of Table 11.6, only five children in the youngest age group of children had no knowledge of stress, all older participants named at least one feature of stress. The number of participants with extensive knowledge increased with increasing age. There was a relationship between knowledge score and experience, measured by the number of people participants had seen stressed ($r_s=.29$, $p<.001$). However, a partial correlation revealed that this was not significant when age was controlled for.

11.4.6 Coping with stress

In response to the question 'How much can people do to stop stress?', using the four point Likert scale, most children in early and middle childhood reported that there were 'a few' things that could be done to prevent and/or manage stress. Most older children and adults reported that there were 'a lot' of things that could be done to stop stress (see Table 11.8).

Table 11.8. Responses to the Question 'How Much Can People do to Stop Stress?'

Likert Rating	Age group								Total	
	Aged 4-7 (n=50)		Aged 7-9 (n=40)		Aged 9-11 (n=42)		Adult (n=92)			
	No.	%	No.	%	No.	%	No.	%	No.	%
Lots and lots	10	14.9	1	1.7	12	24.5	16	17.4	39	14.7
A lot	5	7.5	17	29.3	20	40.8	40	43.5	82	30.8
A few	34	50.7	25	43.1	16	32.7	36	39.1	111	41.7
Nothing	18	26.9	15	25.9	1	2.0	0	.0	34	12.8

There was a significant association between age group and coping rating, although the association was relatively weak [$\chi^2(9)=65.38$, $p<.001$, Cramer's $V=.29$]. Some children who reported that there was 'nothing' that people could do to stop stress, had provided coping strategies earlier on in the interview or went on to state reasons, for example, "*Nothing, er, give a hug, count to 10*" (Rachel, female, age 8). Other children who stated that there were 'a few' or 'lots' were unable to think of any, as demonstrated by Bella, "*[I think there are] a few things, but I can't think of anything*" (Bella, female, age 8).

Coping strategies mentioned by children and adults were grouped together within the framework of coping outlined by Skinner & Zimmer-Gembeck (2007). Table 11.9 shows the percentage and number of children and adults who mentioned each coping strategy across age groups.

Table 11.9: Number and Percentage of Participants Naming at Least One Coping Strategy Within Each Coping Domain

Coping domain	Age group								χ^2	V
	Age 4-7 (n=74)		Age 7-9 (n=59)		Age 9-11 (n=49)		Adult (n=91)			
	No.	%	No.	%	No.	%	No.	%		
Problem solving	6	8.1	13	22.0	7	14.3	58	62.4	70.07	.51
Information seeking	0	0	0	0	1	2.0	21	22.6	-	-
Escape	32	43.2	20	33.9	33	67.3	57	61.3	17.83	.26
Self-reliance	18	24.3	12	20.3	23	46.9	43	46.2	17.53	.25
Support seeking	20	27.0	24	40.7	21	42.9	52	55.9	14.18	.23
Social isolation	2	2.7	5	8.5	11	22.4	3	3.2	3	.27
Accommodation	6	8.1	11	18.6	19	38.8	30	32.3	20.52	.27
Negotiation	9	12.2	6	10.2	2	4.1	15	16.1	ns	ns
Submission	1	1.4	2	3.4	4	8.2	0	0	-	-
Opposition	2	2.7	1	1.7	2	4.1	0	0	-	-

Note. Significance level was $p\leq.001$, except support seeking where $p=.003$. All $df=3$

Overall, both the mean and median number of coping strategies participants in each age group mentioned increased with age (see Table 11.10).

Table 11.10. Measures of Central Tendency and Dispersion for Each Coping Domain

Central tendency and dispersion for coping domains	Age group			
	Aged 4-7 (n=74)	Aged 7-9 (n=59)	Aged 9-11 (n=49)	Adult (n=91)
Problem solving	Significant one-way Kruskal Wallis test (H=71.07, df=3, p<.001)			
M	0.09	0.22	0.16	0.89
SD	0.34	0.42	0.43	0.95
CI	0.02-0.17	0.11-0.33	0.04-0.29	0.69-1.09
Mdn (range)	0.00 (0-2)	0.00 (0-1)	0.00 (0-2)	1.00 (0-5)
Information seeking				
M			0.02	0.23
SD			0.14	0.47
CI			-0.02-0.06	0.13-0.33
Mdn (range)			0.00 (0-1)	0.00 (0-2)
Escape	Significant one-way Kruskal Wallis test (H=20.45, df=3, p<.001)			
M	0.70	0.56	1.39	1.07
SD	1.02	1.04	1.34	1.14
CI	0.47-0.94	0.29-0.83	1.00-1.77	0.83-1.30
Mdn (range)	0.00 (0-5)	0.00 (0-6)	1.00 (0-5)	1.00 (0-5)
Self-reliance	Significant one-way Kruskal Wallis test (H=17.93, df=3, p<.001)			
M	0.30	0.20	0.61	0.56
SD	0.57	0.41	0.73	0.70
CI	0.17-0.43	0.10-0.31	0.40-0.82	0.41-0.71
Mdn (range)	0.00 (0-2)	0.00 (0-1)	0.00 (0-2)	0.00 (0-2)
Support seeking	Significant one-way Kruskal Wallis test (H=11.14, df=3, p=.011)			
M	0.39	0.44	0.47	0.62
SD	0.79	0.57	0.58	0.61
CI	0.21-0.58	0.29-0.59	0.30-0.64	0.49-0.74
Mdn (range)	0.00 (0-4)	0.00 (0-2)	0.00 (0-2)	1.00 (0-2)
Social isolation	Significant one-way Kruskal Wallis test (H=24.89, df=3, p=.005)			
M	0.04	0.08	0.22	0.01
SD	0.26	0.28	0.42	0.11
CI	-0.02-0.10	0.01-0.16	0.10-0.35	-0.01-0.03
Mdn (range)	0.00 (0-2)	0.00 (0-1)	0.00 (0-1)	0.00 (0-1)
Accommodation	Significant one-way Kruskal Wallis test (H=20.05), df=3, p<.001)			
M	0.08	0.20	0.43	0.41
SD	0.28	0.45	0.58	0.67
CI	0.02-0.14	0.09-0.32	0.26-0.59	0.27-0.55
Mdn (range)	0.00 (0-1)	0.00 (0-2)	0.00 (0-2)	0.00 (0-2)
Negotiation				
M	0.12	0.10	0.04	0.15
SD	0.33	0.31	0.20	0.39
CI	0.05-0.20	0.02-0.18	-0.02-0.10	0.07-0.24
Mdn (range)	0.00 (0-1)	0.00 (0-1)	0.00 (0-1)	0.00 (0-2)
Submission	Significant one-way Kruskal Wallis test (H=9.11), df=3, p=.028)			
M	0.01	0.03	0.08	
SD	0.12	0.18	0.28	
CI	-0.01-0.04	-0.01-0.08	0.00-0.16	
Mdn (range)	0.00 (0-1)	0.00 (0-1)	0.00 (0-1)	
Opposition				
M	0.03	0.02	0.04	
SD	0.16	0.13	0.20	
CI	-0.01-0.06	-0.02-0.05	-0.02-0.10	
Mdn (range)	0.00 (0-1)	0.00 (0-1)	0.00 (0-1)	
Total	Significant one-way Kruskal Wallis test (H=65.15), df=3, p<.001)			
M	1.77	1.88	3.47	3.93
SD	1.81	1.66	1.75	2.17
CI	1.35-2.19	1.45-2.31	2.97-3.97	3.48-4.39
Mdn (range)	1.00 (0-8)	2.00 (0-7)	4.00 (0-8)	4.00 (1-12)

There were differences across each of the coping strategies, which are seen in this table and discussed under each of the coping dimensions. The results of one-way Kruskal Wallis tests were significant across all coping domains except 'information seeking', 'negotiation', and 'opposition'. The coping domains 'helplessness' and 'delegation' were not mentioned by any participants and are, therefore, omitted from the discussion of coping domains below.

11.4.6.1 Problem solving

Children in middle childhood were more likely than the other two groups of children to report problem solving coping strategies (see Tables 11.9 and 11.10). However, this category was much more common amongst adults than any of the groups of children.

The strategies within problem solving differed from children to adults. Children generally described strategies in which they took instrumental action to stop stress, for example, walking away from the person causing stress, playing with someone else, or sharing/playing nicely with siblings (to stop parents getting stressed). One child stated that one could "*Stop the jobs, the jobs that you don't think are suitable for yourself*" (Taliya, female, age 7). Adults also mentioned taking instrumental action, for example, twelve adults suggested changing one's circumstances or lifestyle, for example, "*Maybe look for a new job if it's work related*" (Evon, female, age 30). In addition, adults problem solved by putting strategies into place or planning; naming coping strategies such as reflecting upon the stressor so that it does not occur again; improving the work-life balance; and improving time or self management skills. The use of medications to relieve stress was reported by three adults and two children, although children perhaps lacked knowledge about particular tablets, as illustrated in the following, "*Give them pills, stress tablets. Stress steroids*" (Samuel, male, age 8).

11.4.6.2 Information seeking

No children in early or middle childhood mentioned any information seeking coping strategies. Information seeking was also infrequently mentioned by adults and older children, with the former having the highest frequency of occurrence (see Tables 11.9 and 11.10). In older childhood, one child suggested that, to stop stress, one may, "*Go to the hospital. They could if they are kids they could call Childline*" (Patience, female, age 10). Adults tended to seek information through asking professionals - doctors, therapists, counsellors, and

stress professionals were all mentioned as possible people to seek information from. Two adult participants mentioned making use of supervision or work reviews to gain information to lessen stress and one participant suggested, *"Read literature on coping strategies, there are loads of books on this!!"* (Jorja, female, age 36).

11.4.6.3 *Escape*

Escape was frequently mentioned across all age groups; with the oldest group of children mentioning escape coping strategies more than the youngest two groups of children (see Tables 11.9 and 11.10). Coping strategies within this domain mainly related to behavioural avoidance, in both child and adult participants. Children suggested age-appropriate activities such as playing or going to the park, riding or walking. As well as walking, exercising, and getting fresh air, activities adults reported included shopping, having sex, going on holiday, and sunbathing. Two adults advocated having an alcoholic drink to prevent and/or manage stress, and one recommended not to drink alcohol. Both adults and children mentioned one could stop stress by doing something that one enjoys or eating something nice, watching television or listening to music, having a bath, playing with pets, and/or having a rest. Mental withdrawal and wishful thinking were also mentioned by both adults and children, for example, *"Just think about something instead of stress...remember something else which be good or really good"* (Joe, age 6).

11.4.6.4 *Self-reliance*

Self-reliance was again frequently mentioned across categories. The frequency of ratings from children in late childhood was similar to adults, but higher than the youngest two groups of children (see Tables 11.9 and 11.10). Children and adults described ways in which one may regulate emotions such as taking deep breaths. Relaxation techniques in general, as well as specific relaxation activities such as yoga, meditation, and tai chi, were frequently mentioned by adults as a way to regulate one's emotions and help oneself to calm down. Children also talked about how they calmed themselves down, for example, *"Sometimes if I'm really stressed I put my hands over my ears and I put my hands over my ears and think to myself you just need to calm down"* (Tatiana, female, age 11).

Two children recommended the use of a stress ball and one child suggested screaming into a pillow to express emotions. One adult and two children indicated that laughter may help stop stress, as Lottie said, *"Like read a nice*

book – like a happy book – like something that makes you laugh" (Lottie, female, age 5). Humour was frequently mentioned by children in early childhood, who suggested strategies, such as, *"Give them a tickle, that might make them happy again"* (Jesse, male, age 5).

11.4.6.5 Support seeking

The frequency that support seeking was mentioned as a coping strategy increased with age. Support seeking included contact-seeking strategies, comfort-seeking or giving, and providing instrumental aid. For example, *"You can cheer them up with a teddy or something. Or you could give them a hug. Make them a card. Umm help them washing the dishes"* (Whitney, female, age 5). Adults also described providing comfort in general terms.

Both children and adults also identified going to friends or socialising to prevent and/or manage stress. Many children and adults also reported that they would tell others or talk to others about their stress. One child put a lot of thought into the question about coping with stress. She reported that stressed people could *"Tell their mum and dad. Tell the teacher"* and, after a long pause stated, *"If you are a teacher you can tell other people"* (Vanessa, female, age 8).

11.4.6.6 Social isolation

The oldest group of children mentioned social isolation coping strategies more than the youngest two groups of children or adults (see Tables 11.9 and 11.10). Children, across all age groups, mentioned social withdrawal and avoiding others to stop the stress, reporting, for example, *"They could go somewhere quiet, or have a drink or go to their room and have some silence on their own"* (Odelle, female, age 9). The need to sit quietly and be alone was often difficult within the school environment, children tried to overcome this by *"Run[ning] off when people are trying to talk them...and put[ting] their fingers in their ears when somebody when someone is near them"* (Imogen, female, age 6).

11.4.6.7 Accommodation

Children in early childhood were less likely to report accommodation coping strategies than older children or adults (see Tables 11.9 and 11.10), although similar factors were evident across conditions. Accommodation included distraction activities, such as counting to 10 or 100, and acceptance, such as *"Just get over it"* (Verity, female, age 8). Cognitive restructuring, changing one's thoughts or thinking positively, was also mentioned by older children and

adults. For example, "*They should like think like that other people might be stressed and think like I'm not the only person who is being stressed there are other people as well*" (Rosemary, female, age 11).

11.4.6.8 Negotiation

Negotiation was infrequently mentioned across groups, it was mentioned most by adults and decreased with increasing age throughout childhood (see Tables 11.9 and 11.10). Negotiation included bargaining and persuasion coping strategies, such as telling the person stressing you to stop it or saying sorry. It also involved priority-setting and prioritising tasks, which was more commonly mentioned by adults. Adults also mentioned being assertive and stating one's needs. Thirteen adults suggested learning to 'say no' sometimes can help to reduce stress levels.

11.4.6.9 Submission

Again, submission was infrequently mentioned across groups (see Tables 11.9 and 11.10). Most submission coping strategies involved ruminating or thinking about the stressor. This was, at times, positive in a problem-solving type way, for example, "*Go to a quiet room to think about things through one step at a time*" (Tanya, female, age 11).

11.4.6.10 Opposition

Opposition was again infrequently mentioned across groups (see Tables 11.9 and 11.10). Opposition categories included other-blame, such as getting your own back or saying "*Nasty things about them* [person stressing you]" (Zoe, female, age 8), and aggression. Aggressive coping strategies mainly involved punching a pillow, or as Sapphire said, stressed people can, "*Like have a little fight with their pillow*" to manage stress (Sapphire, female, age 11). One child also suggested stamping one's feet to stop stress and another proposed scaring them with a stick!

11.4.7 Coping, experience and understanding of stress.

A coping score, the total number of coping strategies named, was allocated to participants. There was a relationship between the number of people participants had seen stressed (experience) and coping ($r_s=.373$, $p<.001$); this remained significant ($p=.015$) when age was controlled for. There was also a relationship between knowledge score and coping ($r_s=.24$, $p<.001$), however, a

partial correlation revealed that this was not significant when age was controlled for.

11.5 Discussion

This study has provided a detailed account of children's conceptualisation of stress from 4- to 11-years of age. It has compared children's and adults' knowledge and experience of stress within a biopsychosocial framework. The study has examined the effects of age, gender, SES, and experience on children's understanding of stress and coping, in the context of their daily lives. This discussion section considers the findings, in light of the research questions and previous literature – focussing separately on the topics of (1) conceptualisation, (2) experience, and (3) coping. The limitations of the study are then discussed, before conclusions are drawn. Prior to this the biopsychosocial model (Engel, 1977), which provided a framework for coding and analysis, will be discussed.

11.5.1 Biopsychosocial framework

The findings broadly echo the results from the preliminary semi-structured interview study (Chapter 7), and the draw-and-tell study (Chapter 10) in terms of categories of response. On the whole, the themes which were evident in children's and adults' definitions of stress and their beliefs about the consequences of stress fitted within the biological, psychological, and social higher-order categories. Previous research on lay adults' representations of health has shown a bias towards the biological or medical aspects of health (Bury, 2005). In the present study, this biological bias was not evident. It seems that stress is conceptualised as primarily having a psychological basis, particularly in terms of emotional and behavioural psychological elements, which are extended to incorporate biological, and to a lesser extent social and cognitive, factors with increasing age.

Although most codes fitted within the biological, psychological, and social domains, there was overlap across categories, that is, some features could easily fit within multiple domains. This was illustrated in the Results section with 'anger' in the emotional category, which undoubtedly overlapped with behavioural features, and, at times, had social elements, for example, when others were involved with causing or exacerbating the emotion. This should be borne in mind whilst considering each of the higher-order categories within the conceptualisation of stress section below.

11.5.2 Conceptualisation of stress

Conceptualisation of stress was compared across age groups, gender, and schools (representing different socioeconomic backgrounds). The findings within each of these areas will be considered, beginning with gender.

11.5.2.1 Gender

The only gender difference in child participants was that girls were more likely than boys to mention a psychological behavioural feature. Upon closer inspection of this higher-order category, it was evident that aggressive behaviours were reported by similar numbers of boys and girls, but girls were more likely than boys to report crying and body language as a sign or consequence of stress. This supports previous research investigating stress in 8- to 13-year old children in the USA (Sharrer & Ryan-Wenger, 1995), which showed boys tended to watch television to cope with stress or express emotions by yelling or screaming, whilst girls tended to cuddle pets or cry.

In adults, the only gender difference was that females reported more codes than males. There is debate in the literature as to whether the researcher should be the same gender and ethnicity as the participant (Hill, 1997). It is possible, particularly in the interviews, that the difference in gender between the researcher and the participant may have led to different levels of disclosure and hence explains the higher number of codes in females. However, there were no differences in the mean length of interviews/number of words between males and females. Therefore, the difference in the number of codes may be because females disclose more sensitive information than males which was perhaps more codable than the general information received from males. This has been found in previous research which has illustrated that males and females elicit equal amounts of information, but females disclose more intimate information (Chelune, 1976).

Overall, few gender differences were seen in child or adult participants. The lack of gender differences identified in this study, is in line with research investigating children's understanding of physical and mental illnesses (Fox et al., 2010), general perceptions of health (Normandeau et al., 1998) and chicken pox and depression (Charman & Chandiramani, 1995), which all found few gender differences.

11.5.2.2 Socioeconomic status

The main differences noted across schools in different socioeconomic areas were in relation to experience of stress. It may be expected that children from lower SES backgrounds have more experience of stress (McLoyd, 1998). However, the opposite was found in the present study; children from higher-SES schools reported seeing a greater number of people stressed, than the lowest SES school. This may be because of the greater number of children from ethnic minority groups in the lower SES school. This is further discussed below in the Strengths and Limitations of the Study Section (see 11.5.6).

Although no statistical differences were noted in direct experience of stress, considering the qualitative data, bullying (and consequently aggressive codes) were particularly evident in one school within a low SES catchment area. Results from recent research suggest that socio-environmental factors, such as problems with neighbours and family issues, as well as school size, all influence bullying in young children (Bowes et al., 2009). It is possible that these wider community and family factors, rather than SES per se, influenced bullying within the present study.

The variations identified across schools may also be because of the measure of SES. In the present study, a broad overview of SES was obtained from school Ofsted reports, including the number of children eligible for free school meals. However, the usefulness of free school meals as a measure of SES is debated (Hobbs & Vignoles, 2007). It may be that a more accurate measure yields different results, as few statistical differences were identified across schools within varying socioeconomic areas. This is in contrast to the differences seen across age groups, which will be discussed in depth.

11.5.2.3 Age

Age differences were clearly evident across biopsychosocial categories. Children's conceptualisation of stress showed a developmental trend which became more adult-like with increasing age. In the preliminary studies, it was concluded that awareness of the emotional consequences of stress developed first. This was confirmed in the present study, where all children had a high percentage of emotional codes. Many young children were able to describe the emotions associated with stress by the age of 4- to 5-years. This is in line with research exploring children's understanding of emotions (e.g. Brown & Dunn, 1996; Dunn & Hughes, 1998). However, the emotions described by children did

differ from the emotions adults described in relation to their stress. This may be because of the differing methods of data collection between adult and child participants. Both surveys and face-to-face interviews were used to collect data from adult participants. The similarities in responses from the surveys and interview were sufficiently alike to combine the data. However, a significant association was identified between the method of data collection and the disclosure of psychological emotional features; this should be borne in mind when making comparisons across child and adult data.

Consideration of the numerical data showed a shift in children's understanding of stress at 7-years of age, particularly in the cognitive and social domains (few children in early childhood had codes in these categories). Although social and cognitive codes from children in late-childhood showed more similarities with adults' codes, than younger children's, even at 11-years of age, children's conceptualisation of stress was quite different to adults'. It would, therefore, be interesting to research conceptualisation of stress in adolescence to explore exactly when children's understanding becomes like adults'.

In addition to the aforementioned shift in understanding, biological understanding altered at approximately 9-years of age, as many more children had biological codes in late childhood, compared to children in early or middle childhood. The number and complexity of biological features rose with increasing age throughout childhood. Although, again, even the oldest group of children's knowledge was not comparable to adults' integrated framework of knowledge. For example, only adults included the mind-body distinction. Adults mentioned biological features more than all groups of children. Adults tended to include a wider range of physiological features, as well as report a number of health (both physical and mental) consequences of stress. Nevertheless, even in early childhood, children reported some biological features. The features that young children reported tended to be isolated facts about biology, such as having a red face, whereas older children had a more integrated framework of biological knowledge. This provides some evidence in support of a naïve theory of biology. Children's knowledge was, however, not always accurate, as illustrated by the child who thought a stressed person's eyes went red because blood 'went right up to his head'. This was again illustrated by the child who described 'stress steroids'. As identified in previous research exploring children's understanding of mental illness (Fox et al., 2008), the findings of the present

study suggest that children amalgamate facts about stress through their knowledge of physical illnesses.

Age differences were also evident in the aggressive behaviour theme. Children were more likely to report aggression than adults. Children described difficulties in controlling their behaviour, which sometimes resulted in self-harm. Although aggressive behaviours were not common in adults, many adults did describe shouting when stressed. Social learning theory acknowledges that children learn behaviours through observation of adults who act as 'models' (Bandura, 1977). That is, social cognitive theory suggests that children learn through observing, modelling and cognitively processing the behaviour of others (Greig et al., 2007). It has been found that children's ability to understand emotions is related to parental teaching (Dunsmore & Karns, 2001). It is possible that children learn how to behave when stressed, through seeing others who are stressed, and learning from others about stress. It is, therefore, important to consider children's experience of stress, as well as how experience relates to understanding.

11.5.3 Experience of stress

The findings from this study also confirm the results of the preliminary studies in terms of experience. Some children, across all age groups, had experience of stress in their daily lives, both personally and indirectly. Children's experience of stress was lower in early childhood and levels of experience escalated with increasing age. The present study also added to the previous body of research by exploring how children's experience of stress compared to adults; adults were more likely to have seen a greater number of people stressed than children. Nevertheless, even though children had less experience of stress than adults, children were still able to provide expressive accounts of their personal experience of stress and also able to describe other people who have been stressed. This supports previous research which has found that children (aged 7+) can talk about stress, worries and concerns (e.g., Brobeck, Marklund, Haraldsson, & Berntsson, 2007; Dibrell & Yamamoto, 1988; Jacobson, 1994; Lewis, Siegel, & Lewis, 1984; Ryan-Wenger et al., 2005; Sorensen, 1993). It is also in line with research which has shown that children are able to explain their own emotions, as well as others' emotions within close relationships (Dunn & Hughes, 1998).

In the present study, falling out with friends, difficulties within families, and bullying were more frequently reported as stressors in middle childhood. School or school work was more frequently reported as a stressor in late childhood. From the preliminary research, it was observed that childhood stressors have unique meanings within the child's frame of reference. Although some evidence of this was again found in the present study, particularly in early childhood, the main stressors children identified were similar to those identified in previous research (e.g., Sorensen, 1993).

The finding that school work became more of an issue in later childhood has been found in previous research, which has found school work is a stressor in adolescents (Garrard & Brumby, 1985) and 11-12 year old children (Brobeck et al., 2007). The bullying identified in the present study, may be related to the themes identified by others, for example, the threat to self and being hassled domains identified by Jacobson (1994) and peer relations identified by Lewis, Siegel, & Lewis (1984). Although some children mentioned self image, another factor found to be important by Lewis and colleagues, this was not a major theme within the present research. The categories identified by Sorensen (1993), seem to best fit the data in the present study, that is, stressors related to situation (e.g., school, home chores), self (e.g., disappointment, physical symptoms) and others (e.g., friends, siblings). With the latter category incorporating most stressors mentioned in the present study. In addition, some children mentioned stressors of being alone, tests, family conflict, and too many things to do, as identified by Ryan-Wenger, Sharrer, & Campbell (2005). Ryan-Wenger and colleagues documented that these items were not incorporated in the early childhood measures of stress. The findings from the present study provide further support that early stress scales are not appropriate measures for modern day childhood stress. In summary, the present study showed that children, particularly from the age of seven upwards, talked about a wide range of stressors that they personally faced and were able to talk about how they coped with these.

11.5.4 Coping with stress

Using the four-point Likert scale, it was observed that children (below age 9) were more likely to report that there was 'nothing' people could do to stop or manage stress, than older children or adults. It is possible that this was accurate, given the aforementioned findings. However, it may also be due to the concrete-relational terms used on the Likert scale. In the preliminary interview

study, it was not felt that the use of these terms was a problem, however, in the present study, it appeared that some children may not have understood the terms. For example, reporting that there was 'nothing' people could do to stop stress and then naming factors.

Responses to the open-ended interview question may therefore be more reliable indicators of children's coping. From this question, the three most common ways of coping identified in the present study were support seeking, problem-solving and escape. This is similar to the main coping strategies identified by Skinner & Zimmer-Gembeck (2007). In the present study, problem solving increased throughout childhood, as did support seeking, as children described talking to peers as well as parents; this is in line with Skinner and colleagues' research. In terms of how Band & Weisz (1988) categorised coping, children in the present study reported both primary coping (problem solving, accommodation, negotiation), secondary coping (escape, self-reliance, support seeking, accommodation, opposition), and relinquished control coping (social isolation). Children tended to report a range of coping strategies and there did not appear to be a pattern in coping style related to particular stressors, as Band & Weisz identified. This is perhaps because, in the present study, coping was asked about in general terms rather than in relation to the specific stressor(s) each child mentioned. Also as noted by Band & Weisz, although some children across age groups reported using both primary and secondary coping strategies, secondary control coping was more common in older children. As Band & Weisz postulate, this may be because secondary control coping is a more abstract process which younger children are unable to understand or because younger children do not have the linguistic capabilities to describe secondary coping. It seems likely that children's ability to cope with stress is influenced not only by age and maturity but also by a number of mediating and moderating variables, including family environment, peer relationships (Faust & Katchen, 2004) and learning from others.

In contrast to the preliminary studies, the present study did not find that the majority of children had difficulty generating ideas about how people could cope with stress. Most children were able to name one or more coping strategies. It may be that having drawn a picture of a stressed person first, children had longer to think about stress and, therefore, were able to identify more strategies than in the preliminary research. It may also be because of the research being conducted in a wider number of schools, which perhaps differed in provision and

support. For example, it was identified, through talking to staff, that children in some classes had had a recent Personal Social Health and Economic (PSHE) education session on coping with worry during preparation for their SATs. There was also evidence of differing levels of support across schools, for example, Childline posters were clearly displayed on doors and notice boards in one school and emotional literacy posters (showing various facial expressions) at another.

However, despite this increased knowledge of coping, as in the previous interview study, a number of children identified a lack of coping skills and/or described using maladaptive coping strategies when faced with stress. The findings, therefore, highlight that teaching young children coping skills may be useful. There are a number of educational programmes, designed for schools to improve emotional wellbeing, which include teaching coping skills. For example, the 'Zippy's Friends' programme for 5- to 8-year olds distributed by the non-profit organisation Partnership for Children. This programme is based around six stories of an imaginary stick insect Zippy; it describes issues that children identified in the present study, such as feeling angry, or lonely, bullying and friendship difficulties and helps children to understand change and expand their repertoire of coping abilities. The findings from the present study suggest that wider use of such programmes within primary schools may be useful.

11.5.5 Knowledge, experience, and coping

There was a relationship between the number of coping strategies participants could name and the number of people that they had seen stressed. This suggests that greater experience of stress is related to greater awareness of coping strategies. This fits in with the social learning hypothesis mentioned earlier, whereby children learn about coping through seeing others model behaviour.

Although relationships were found both between knowledge and experience of stress, and knowledge and coping, these were not significant when age was taken into consideration. This may suggest that age differences or changes in cognitive development are responsible for the increasing knowledge, rather than the cumulative experience of stress or seeing others cope with stress. This is in contrast to previous research, such as Bird & Podmore (1990), which has found experience related to understanding of health and illness. Further evidence in support of this came from the adult data, in that, a few adults reported that they did not have experience of stress, but all were able to provide an account of

stress. This demonstrated that experience was not necessary for understanding in adult participants and confirms the preliminary interview study, where children who were told about stress (through a storybook) were subsequently able to talk about stress.

In summary, the study has shown that both children and adults conceptualised stress within a biopsychosocial framework. Children's understanding of stress showed a developmental trend, increasing in complexity and incorporating more domains with rising age. There seemed to be a shift in understanding of stress at the ages of 7 and 9. However, many young children (below 7-years) had an awareness of the psychological behavioural and emotional aspects of stress. Children's understanding of stress and the coping strategies used were different to adults' conceptualisation of stress and coping. However, the findings must be considered in light of the limitations of the study.

11.5.6 Strengths and limitations of the study

Three main areas where strengths and limitations were identified, in the present research, relate to the sample, child protection, and method; each of which will be considered in turn.

11.5.6.1 Evaluation of the sample

The relatively large sample size is a key strength of this study. However, it should be borne in mind that there may have been a sampling bias. The demographics of the adult sample showed that this was a relatively well-educated sample of mainly White British participants and thus may not be representative of the wider lay population. In addition, schools' willingness to participate in the study was a big influence on the schools represented in the study. Few schools contacted agreed to take part in the research. There may be differences between schools that did and did not agree to take part. Although it was not possible to gain feedback from all headteachers/schools about why they did not want to take part in the research, the main reasons were lack of time within the school curriculum and/or schools being too busy, as well as some teachers being concerned about talking to children about stress. This concern fell into two disparate branches. On the one hand, some teachers were concerned that there were a number of children with known issues in their school (e.g., child protection, parental divorce, difficult situations at home) and were concerned that talking to children would highlight these issues, which children 'should be protected from'. On the other hand, other teachers stated

that children of this age group 'did not experience stress' and it 'would be inappropriate to talk to children about stress'. From the feedback gained from some headteachers, in attempting to gain access to schools to conduct the research, it would appear that some adults do not believe that it is appropriate for young children to understand stress. It is appreciated that this is anecdotal evidence, however, it does highlight that further research exploring adults' perceptions of childhood stress may be interesting.

It was noted that the samples used in the preliminary research studies (Chapters 6 to 8) were restricted mainly to White British children; therefore, efforts were made to obtain a more representative sample in the present study, which was a real strength of the study. The schools that did take part in the present study were located in three different counties in England. All schools were within ten miles of urban town/city centre locations and were within socially diverse areas. As such, most schools had a wide variation of ethnicity of pupils. It was initially planned that only monolingual English speakers would be recruited. However, due to the high number of children from backgrounds where English was not their first language, this was impossible to do. This may be seen as a strength of the study in that it was inclusive, but it may also have affected the results. That is, some children may be speaking English as a second language and, therefore, have been learning English for a much shorter time; this may influence their understanding of the term stress. Additionally, it may be that children who speak English as a second language are less likely to have indirect experience of stress because of their parents speaking a different language at home and not using the English word 'stress' to describe their experiences. Indeed, it was found that children in the lowest SES school, which had an above average number of children from ethnic minority groups, had less indirect experience of stress than those from other schools. It would have been useful to ask children whether they spoke English at home, in order to examine whether this was the reason for the finding. Another factor to consider is that there may be different cultural representations of stress, for example, as mentioned in the introduction to the thesis (Chapter 3), in some cultures it is not appropriate to express feelings and emotions (Vinden, 1999). In summary, children from different minority backgrounds may have differing experience of stress because of the lack of English in the home environment. In addition, it may be that children from different cultures perceive stress in different ways, and/or that there are cultural differences in the way people display stress. However, as no

information was taken from children/parents about ethnicity, caution must be exercised regarding the generalisation of the results.

11.5.6.2 *Child protection issues*

Perhaps, with the benefit of hindsight, the researcher should have better assessed the risk of children disclosing sensitive information, when asked about stress. It is possible that some schools more accurately assessed this risk and this may explain why so many schools were reluctant to take part in the research. Children disclosed a number of issues of concern during the interview process. Four children mentioned that their parents hit/punched them which caused them stress. Although this may have been in the context of being smacked, it was reported to the headteacher in line with the school's child protection policy. One child who came from a 'difficult background' had already received help and support for her stress, but was keen to talk further about this with the researcher. Several children disclosed that they had experience of bullying which caused them stress. Bullying was reported within the school environment and, externally, in places of worship and out-of-school clubs. Disclosures of both current and historic bullying were followed up with the child and all issues of current bullying were disclosed to the class teacher. Other issues of concern were, one child described symptoms of an eating disorder, and another described self-harm. One child talked about frequently running away because of 'feeling scared to be at home because bad things happen', and another felt stressed being left alone in the home to look after younger siblings. All these issues were reported to the specified contact, within the school, to be followed up by teaching staff.

Although issues of concern were considered in the initial risk assessment and planning of this research project, the level of disclosure by so many children raises a number of issues. It is not clear why so many children disclosed issues of concern to the researcher, a relative stranger who had only been in their classroom for a short-time period (approximately 30-45 minutes). It may be that children are not often asked about stress and they welcomed the opportunity to talk about their stress. Certainly one child, who had been bullied, stated during the interview that she was pleased that someone had come to talk about stress as she 'really wanted to tell someone about her stress'. This is worrying as all schools have a bullying policy and children should be aware of whom they could talk to within each school. Clearly some children were not aware of this person or did not feel able to talk to this person.

Children were encouraged to talk about stress in the interview, but were given the autonomy to decide what they wanted to say about it. All children were informed, both in advance of the interview and during the interview (if it seemed like the child was beginning to disclose concerning information), that anything that they told the researcher which involved a child 'getting hurt' would have to be passed on to others. Children seemed to disclose information specifically so it would be passed on, either by helping the child to tell someone or by telling on his/her behalf. Explicitly offering children an opportunity to talk to a member of staff about their concerns may be a useful way of identifying children at risk of harm. It may also be that the disclosure level was related to the preceding draw-and-tell study, as this method has been found to enhance and facilitate communication (Driessnack, 2005; Sartain et al., 2000). The draw-and-tell method may therefore be useful in future research to act as a vehicle to discuss stressors.

11.5.6.3 *Evaluation of the method*

The draw-and-tell aspect of the study enabled the researcher to develop a rapport with the child. This meant that the interview was more in line with normal conversation than the interview study described in Chapter 7, (despite the researcher asking exactly the same questions as asked in the study reported in Chapter 7). Backett-Milburn & McKie (1999) stated that drawing does not help children to communicate their thoughts any more than everyday conversation, and questioned the increasing use of the draw-and-write technique. The relative ease of data collection and lack of visible anxiety from children in the present study, in comparison to the preliminary interview study, suggests that the draw-and-tell technique helped to develop a rapport with children and enabled a more detailed representation of children's perceptions of stress to be gained.

11.6 Overview of Chapter

This large-scale study mainly corroborates the findings from the preliminary research (Chapters 5 to 9). Both children and adults conceptualise stress within a biopsychosocial framework. Children's conceptualisation of stress shows a developmental trend, increasing in complexity and incorporating more domains with rising age. In contrast to the preliminary research, many children were able to provide ideas of how one may stop or manage stress. The number of coping strategies young children were able to name was fewer than older children and adults. This may be, at least in part, due to coping being taught within some

schools in the present study. Despite increased knowledge of coping strategies, some children still described aggressive behaviour and maladaptive coping. It may be that further teaching of coping strategies (within a school environment) is useful in helping children, who clearly have experience of stress, manage their stress. The findings from this study highlight that it would be appropriate for educational and health professionals to teach children about coping techniques from a young age. Certainly, by the age of 7-years, children seem to have an awareness and understanding of stress, as well as experience of the concept, to warrant education of coping strategies. It may also be appropriate to teach coping to children aged 4 to 7, focusing on coping with the psychological behavioural and emotional effects of stress. Further research, exploring the efficacy of coping interventions within the school environment, may be useful. The final chapter will discuss this, along with additional ideas for future research and consideration of the implications of the study in more depth.

PART FOUR:
DISCUSSION

12. OVERALL DISCUSSION

12.1 Introduction

The lack of research investigating children's understanding of psychological concepts, relating to health and illness, was noted in the review of the existing literature (Chapter 3). It was also highlighted that, although there is a vast body of literature on stress and coping, there is a paucity of research exploring stress from the perspective of young children. This thesis has provided a methodological and theoretical exploration of young children's understanding and experience of stress through a series of five empirical studies. Thus, the findings from this thesis go some way to addressing the aforementioned gaps in the literature.

The preliminary studies (Chapters 6 to 8) provided an initial exploration of stress and coping in children and investigated different methodologies to enable the most appropriate method of data collection to be used in the main study. The draw-and-tell (Chapter 10) and subsequent interview study (Chapter 11) then provided in-depth data from children. A key strength of the research is that the methodological inquiry was performed initially, enabling the large-scale final study to employ the most appropriate method to tap into children's perceptions. This is important as research with children, particularly in classroom settings, often has numerous methodological challenges (Brown, 1992). The methodological inquiry also identified that the draw-and-tell method was a useful way of developing a rapport with children.

Taken together, the preliminary and main studies have provided the first comprehensive exploration of young children's conceptualisation of stress. The studies also provided detailed insight into children's experience of stress and coping and, in the later studies, compared this with adults' perspectives and experiences. Participants expressed how the term stress is used colloquially within today's society. It was observed that there was some overlap across lay accounts of stress and the psychological models of stress described in Chapter 2. All children who were able to describe stress and all but one adult participant, in the main study, provided an explanation of stress that fitted within the main psychological models (conceptualising stress as a stimulus, as a response, or as a transaction between the environment and coping resources). This

demonstrates that psychological and lay conceptions of stress are similar and overlap which has been argued previously (Pollock, 1998). The higher-order domains within participants' accounts of stress also fit into one of the main psychology paradigms, that is, the biopsychosocial model, thus the findings have implications for theory.

As each of the five studies has been discussed in each respective chapter, this final chapter draws together the most pertinent findings in relation to the main research questions. Thus the aim of this chapter is to draw conclusions and consider the implications of the findings for future research and practice.

12.2 Overview of Main Findings

12.2.1 Aims 1 & 2: Awareness and conceptualisation of stress

The findings from this thesis suggest that some children, including some as young as 4-years of age, do have an awareness of stress. This awareness develops throughout childhood, in terms of how children conceptualise and experience stress. It has been demonstrated, throughout the present research, that children and adults perceive stress as a complex composite phenomenon involving emotional, behavioural, cognitive, social, and biological factors. Few differences in children's conceptualisations of stress were seen across gender or SES, but wide variations were seen across age groups. Some children in early childhood (under seven years old) were aware of multiple elements associated with stress, but most young children's knowledge of stress was restricted to the emotional and behavioural aspects. On the whole, understanding of the cognitive and social factors associated with stress was limited to children over the age of seven and biological factors associated with stress mainly limited to children over the age of nine. Although age differences were found in each of the studies in this thesis, there was some degree of variation within age groups. That is, it cannot be assumed that all 4-year old children have no understanding of biological or cognitive aspects of stress, nor can it be assumed that all children aged 11 and over, have a comprehensive understanding of stress.

The older children, across the studies, had a greater understanding of stress than the younger children and it appeared that children's knowledge, understanding, and experience expanded with increasing age, becoming more adult-like by the age of 9-11. However, older children's understanding remained different to adults' conceptualisations. This may reflect the different 'lived realities' of child and adult participants. That is, child and adult cultures differ

and children's lived experience is different to that of adults' (Backett-Milburn & McKie, 1999). Similarly, the differences found between younger and older children may also reflect differing perspectives and social contexts. This was particularly evident in the draw-and-tell study where social illustrations dominated the pictures drawn by children in middle-childhood. This may relate to changes in children's social identity which occur during this age period (as discussed in Chapter 10) or may be related to increased experience.

12.2.2 Aim 3: Experience of stress

In terms of experience of stress, the studies have shown that some children, across all age groups, had both direct and indirect experience of stress. Overall, 90.2% of children reported seeing significant adults and/or friends being 'stressed' or saying that they were 'stressed' and 81.2% of children reported personal experience of stress. The number of children with both types of experience of stress increased with age. In the preliminary studies, it was hypothesised that the improvement in young children's understanding of stress may not be due to a conceptual shift in understanding, but rather because of an increase in experience of stress. The main study found partial support for this, in that there was a relationship between understanding and experience; however, this was not significant when age was accounted for, suggesting that age relates to both experience and understanding. In the early studies, it also appeared that indirect experience preceded direct experience. This was not confirmed in the main study as 24 participants (8.7%) reported only personal experience of stress. Taking the findings as a whole, it seems likely that children's developing understanding of stress is an interaction of experience (the amount of stress seen in other people, as well as personal experience), as well as increasing general cognitive ability over time. Further research exploring how these factors interact may be useful.

Although many of the stressors identified by children, in the present research, were in line with the major childhood stressors discussed in stress research (e.g., Sorensen, 1993), some of the factors young children described as stressful may not be identifiable as such to adults (e.g., children's toys misbehaving). This is important for caregivers and professionals working with children, as it highlights the importance of asking children about their own stress. It is also important to note that although several young children stated that they had experience of stress, some were unable to conceptualise this; this also has implications for parents and carers as it may be up to them to help children to

understand the emotional and behavioural consequences of stress that they experience but cannot verbalise. Health and educational professionals, as well as parents and carers, may use the themes identified in this thesis to explain stress to children, focusing on the emotional and behavioural aspects for the under seven age range, cognitive and social factors in those over seven, and biological factors only in children aged nine and above. This may help children to cope with stress.

12.2.3 Aim 4: Coping with stress

The findings from this thesis showed mixed results about how children cope with stress. The preliminary research studies (Chapters 6 and 7) identified that most children lacked knowledge of coping strategies to deal with stress, in contrast the findings in the forced choice (Chapter 8) and main studies (Chapters 10 and 11) illustrated that most children were aware of some coping strategies. In the main study, children were particularly aware of strategies to deal with falling out with friends - children's biggest stressor. Children commonly stated coping strategies which have been shown to be valuable in helping children feel that they can cope with stress in schools (Fallin, Wallinga, & Coleman, 2001). The findings have also shown that many children were aware of relaxation techniques to cope with stress, including taking deep breaths and counting. It may, however, be worthwhile to help some children enhance their coping repertoire, as it was evident in all studies that some children had seen others stressed and/or experienced stress themselves, but were not able to name any coping strategies. Techniques, which have been advocated as being suitable for children, include muscle relaxation, playing with Plasticine or play dough, dancing, positive self-talk such as telling oneself, 'I think I can do this', and using creative imagery, for example, imagining your favourite place (O'Neill, 1993). Some children in the main study suggested they may stop or manage stress using coping strategies such as these, confirming that they are useful for children.

The variation in coping strategies described across the different studies seems likely to be due to the teaching of coping and emotional literacy in some of the schools in the main studies. Whilst conducting the research for the thesis, it was evident that schools varied in how much they taught children about stress and coping. Although stress and coping are not part of the core national curriculum, some teachers do recognise the importance of it. This leads to one avenue for future research – to explore how stress and coping strategies are being taught

within schools. There are evidence-based interventions, specifically designed to help children to cope with stress in childhood, although these are not in widespread use in the UK. Some randomised control trials to assess the efficacy of these evidence based interventions have been conducted (e.g., Clarke & Barry, 2010; review of 'Zippy's Friends' emotional wellbeing programme) but further research would be useful in schools in England.

12.2.4 Other research questions

Further research to explore how children learn about stress may also be beneficial. It became apparent in the preliminary studies that it was not possible to identify where children develop their understanding of stress from, as few children recalled a specific incident when or where they learned about stress. It may be that learning about stress is a gradual process. From the few children who did remember, it would appear that there may well be a number of explanations about how children learn about stress - although it does appear that most children learnt from significant others.

It may be that informal learning about stress occurs when children experience stress directly and/or when they see others, who are stressed, demonstrate coping skills. In addition, more formal learning may occur when other people (adults or older peers) provide explanations about stress to help the child to make sense of his/her experiences. In terms of social learning theory (Bandura, 1977), children may develop an understanding of stress through observation, for example, *"I saw my mummy be stressed I did"* (Leona, female, age 4) and imitation, such as, *"I get stressed when my toys don't do as I say"* (Marcus, male, age 5).

From a social constructionist stance, one might question how much a child's access to knowledge influences their understanding. That is, whether significant adults in the child's life perceive it appropriate for children to know about stress, and how much information they share with children about stress. Certainly in terms of gaining access to schools, many headteachers differed in their opinions about whether or not children should know about stress (as discussed in Chapters 4 and 10). It seems likely that the headteachers who did not take part in the research because they thought that children 'do not and should not experience stress' are likely to believe it is inappropriate to teach children about stress and coping within their schools. Within the schools that did take part in the studies, several teachers questioned the researcher about what children

should be taught about stress, asking both from a teacher and parental perspective. This anecdotal evidence suggests that there is uncertainty about how to inform children about stress. Some teaching staff reported that they wished to protect children from worry and distress, but were aware of the potential behavioural changes in children being partly due to stress. This highlights the importance of disseminating this research to educational professionals.

Further research may consider how children gain knowledge about stress. Although this proved very difficult in the present body of research, it may be a longitudinal study could identify this. Additionally, it would be interesting to compare child and parental understanding within the same family unit, in order to make comparisons which may highlight where and how children's learning occurs and to explore how the sorts of knowledge available influences understanding. This research within families may also help further our understanding of how children learn to cope with stress, especially if this is also through a social learning process.

12.3 Issues of Concern

A number of issues of concern relating to child protection were identified during the present research, as discussed in each chapter. It is important to consider these further, as they have implications for practice and further research. The number of children, who disclosed sensitive issues, was somewhat unexpected given that the researcher was only present in each classroom for a short time period and individual interviews were relatively short. Nevertheless, when asked about stress, children felt able to disclose personal and emotive information relating to bullying, possible abuse/neglect, self-harm, and eating difficulties.

It is worth considering the number of disclosures throughout the present research, in comparison to research reporting the prevalence of these issues on a wider basis. Many studies looking at prevalence are with older children, but do however, give a guide to make comparisons with the age group in the research conducted for this thesis. In terms of bullying, the most appropriate research documents the prevalence of bullying in secondary schools, across different regions of the UK. This has found that more than one in four children (aged 11-15) in the East Midlands (30.4%) and Yorkshire and Humber (31.6%) regions reported experience of bullying in 2009/2010 (Department for Children, Schools and Families, 2010). The rate of disclosure of bullying in the present studies

varied substantially across schools (0 to 39.6%), but was, on the whole, lower than the average for the area in which the research was conducted. In terms of child abuse, there are few studies that report the prevalence of abuse in young children, but a recent NSPCC report documents that approximately one in four young adults (25.3%, aged 18-24) and one in five older children (18.6%, aged 11-17) reported being severely maltreated during childhood (Radford et al., 2011). Therefore, the disclosures by children relating to possible abuse or neglect, in the present study, (representing 1.7%) of children who took part in all of the studies is again lower than the national average. Similarly, the vast majority of research investigating the prevalence of self-harm involves children 11-years and older. In one of the exceptions, a survey of over 10,000 parents of 5- to 15-year old children, 1.3% reported that children (aged 5-10) had attempted to harm themselves (Meltzer, Harrington, Goodman, & Jenkins, 2001). Four children mentioned self harm throughout the five studies conducted for this thesis (0.85%). This is lower than the national prevalence, at least as reported by parents, although self-harm is often kept a secret and, therefore, this may be an underestimation. Finally, the prevalence of eating disorders amongst 5-13 year old children is small with about three in every 100,000 children under 13 in the UK and Ireland having an eating disorder (Nicholls, Lynn, & Viner, 2011). It is difficult to quantify whether the one child who described eating difficulties in the present research fits in with these statistics, but it does not seem unreasonable to suggest that it might. Therefore, although surprised by the level of disclosure by children, as one was not specifically asking about these issues, the number of disclosures was generally as one may expect given the prevalence levels.

It seems that, when asked about stress directly, some children wish to talk about their stressors. Most of the incidents mentioned to teachers were not known issues of concern or were from children who were known to have difficult home lives, therefore, they may not previously have been given the opportunity to talk to adults about their stressors. The present research, indirectly, allowed children to disclose issues that were concerning them. It may be that simply asking children directly, and giving children the time and space to talk about issues, yields this level of disclosure. This has implications for educational professionals, as an understanding of children's concerns may be achieved by teachers regularly asking children about their wellbeing, although it is appreciated that teachers may not have time for this. Alternatively, it may be that children felt it easier, less threatening or safer, to disclose to a person

he/she would not see again, rather than talk to his/her teacher. If the latter is the case, this may be a role for healthcare professionals within the school environment. Although beyond the scope of this thesis, this is a topic worthy of further consideration.

12.4 Theoretical Implications

In terms of theory, it is interesting to note how and when children begin to develop an understanding of stress, and how this relates to their overall development. The results of these studies indicate partial support for a Piagetian theory of development. The finding that some children in early childhood had an understanding of stress, challenges Piaget's idea that young children have no understanding of abstract concepts. However, the majority of the findings do correspond to the key ages within the Piagetian stage theory. As described previously, most young children in the present research viewed stress in terms of physical observable characteristics, behaviours, and emotions which may be seen or felt when under stress. As children begin to think less egocentrically, they additionally conceptualised stress in social and cognitive ways. Later in childhood children began to develop a more detailed, specific understanding of stress, including biological phenomena. These findings seem to fit in with the ages at which Piaget noted changes in conceptual understanding and, although different to children's understanding of illness, broadly align with the developmental levels of conception of illness reported by Bibace, Schmidt, & Walsh (1994; see Table 3.2, in Chapter 3), which were based on the Piagetian framework. That is, children's perceptions initially appeared to be based on association with the emotions or behaviours related to stress (this relates to the magical level described by Bibace and colleagues). Children then began to describe a sequential awareness, bringing in cognitive and social factors which may cause stress or help to alleviate stress (this corresponds with the concrete level described by Bibace). Finally, older children and adults provided an explanation based on the interaction of multiple elements, sometimes incorporating biological or physiological factors (this links to Bibace's abstract level). Only adults were able to provide a psychophysiological interpretation linking the mind and body, as has been previously described by Koopman, Baars, Chaplin, & Zwinderman (2004; see Table 3.3. in Chapter 3).

The findings may also be considered within the naïve theoretical framework, in terms of children's progression from simple to more complex integrated knowledge. It seems that young children do have an understanding of stress,

which is, on the whole, limited to factual knowledge about behaviours or emotions. Young children did not generally conceptualise stress in terms of biological elements; this may be because of their inability to reason about biology (as discussed by others e.g. Au & Romo, 1999; Solomon & Cassimatis, 1999). As children continue to gain knowledge and experience which adds to their naïve theory this, over time, becomes a more specific detailed theory. How this happens was not explored in the present research, but it seems likely that children learn through exploration and testing of theories, as well as learning through others.

12.5 Conclusion

In summary, this thesis has provided a methodological and theoretical exploration of children's understanding and experience of stress and the coping strategies that they may employ or be aware of in their daily lives. Findings from the research extend the literature in several ways, in relation to both method and theory.

In relation to method, firstly, it was found that the semi-structured interview was more effective and appropriate than focus groups or forced choice methods in exploring children's understanding of stress. Secondly, the draw-and-tell method was found to be an effective technique to develop a rapport with children prior to conducting interviews, although it is postulated that the draw-and-write method may provide a quicker way to collect data from older children. Finally, semi-structured interviews provided a rich-source of data when a rapport had been developed with children.

In terms of theory, the results are less clear cut. From the studies conducted, it is clear that some young children have an understanding of stress, which develops in complexity with increasing age. The key ages at which children's knowledge and understanding increases does fit in with the ages described in the Piagetian framework of cognitive development. However, because some younger children also have understanding, it suggests that other factors are involved in children's understanding. It may be that a social constructivist approach, whereby children learn from social interactions may explain children's developing understanding of stress. There is also some evidence to suggest that children's developing understanding fits within a naïve framework. Therefore, rather than simply select one theoretical framework, it is perhaps more useful to take an eclectic or heuristic consideration of the theories of child development

and draw on a range of theories and methods to assess children's understanding.

Finally, the research also has implications in practice. The research could provide guidance for provider-patient communication, particularly within preventative health education, in terms of communicating with children about stress. It may also help educational providers help children to cope with stress within the school environment. The research has also raised the importance of directly asking children about their stressors.

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Agatha's Story

The bell rang and at last Agatha knew that it was home time. Agatha was very excited, she'd had a great day at school. Agatha had got all her spellings right and her teacher gave her a sticker. She couldn't wait to show her mummy.



One by one Agatha's friends left the class until Agatha was the only child left. Eventually Agatha's mummy arrived. She rushed in and said, "Sorry I'm late, I've had such a busy day and then I got stuck in traffic. I've been so stressed that it has given me a headache." Agatha's teacher told her it was OK and said goodbye to Agatha.

On the way home, Agatha told her mummy about her gold star and her mummy gave her a big hug. Agatha smiled because she was so happy. Later that night, Agatha began her homework. Agatha tried and tried but she could not do it.



Agatha asked her big sister, Meg, to help, but Meg had just had an argument with her friend and was stressed. Meg stomped upstairs and slammed her bedroom door. Agatha asked her mummy to help, but she was too busy making tea. Agatha was worried because she didn't know what to do.

The more Agatha tried to do her homework by herself, the more muddled she became. Agatha felt so stressed about her homework that she couldn't eat her tea. Her mummy asked her what was wrong and Agatha told her. Mummy said she would help her later. Phew! Agatha felt much better and ate up all her tea.





Archie's Story

The bell rang and at last Archie knew that it was home time. Archie was very excited, he'd had a great day at school. Archie had got all his spellings right and his teacher gave him a sticker. He couldn't wait to show his mummy.



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On the way home, Archie told his mummy about his gold star and his mummy gave him a big hug. Archie smiled because he was so happy. Later that night, Archie began his homework. Archie tried and tried but he could not do it.



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About me...

1. My name is _____

2. Put a circle around the number below to show how old you are

5 6 7 8 9 10 11 years old

3. My birthday is on (date) ____ (month) _____

4. Put a circle around the picture below to show if you are a girl or a boy

I am a girl



I am a boy

